A New Geography of The Indian Empire

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A NEW GEOGRAPHY

OF

THE INDIAN EMPIRE

BY

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WITH MAPS AND DIAGRAMS

THOMAS NELSON AND SONS

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PREFACE.

I TRUST the objects aimed at in this little book will be made sufficiently clear by a glance through its pages, but one or two of these objects may be here set down.

In the first place, an attempt has been made to put and keep clearly before the pupil the causes of things. The study of geography, to have any real educational value, must be a mental discipline, a rationalizing process. Hitherto it has largely been a mere memorizing of a mass of undigested information concerning isolated facts, names, and figures. The subject, if rightly appreciated, forms, to the young mind, the first doorway to the great world of science; * its province in this respect should be jealously conserved. It may be made the means for giving the young intelligence, eager for knowledge, its first conceptions of how man affects and has been affected by his environment (a not altogether inadequate definition of science as a whole), or it may be made the driest and least suggestive of all studies.

The study of the geography of the Indian Empire is educationally of peculiar value. To give only a few reasons:—Its physical and meteorological phenomena are on a majestic scale, and their influences are direct and clearly marked. The geographical conditions affecting the life of its peoples are likewise simple, and yet broadly defined. Modern factors such as steam and electricity, which have transformed the conditions of life in Western countries, have only begun to affect

* Could not, for example, a very interesting lesson be given, with the aid of a physical map of India, on the simple fact that water flows from a higher to a lower level at a rate proportionate to the slope?

the peoples of India and Burma; their influences can therefore be more clearly seen in operation.

In the second place, it has been sought to introduce some kind of rational sequence into the subject-matter, and especially to throw the whole into intelligible perspective. With this in view, emphasis has been laid on the outstanding physical and climatic features of the Indian Empire, with their consequences. The "political" geography has been relegated to a subordinate place. In this connection I may be allowed to quote a couple of sentences from a paper on geographical teaching by Mr. C. Bird, F.G.S., Headmaster, Rochester Mathematical School, which was brought to my notice after this book had been sent to the press:—

"With this object in view, a few general principles should be well explained and drilled in at the outset, and continually referred to. The chief of these are the conditions which determine the climate of a country. Very careful explanations should therefore be given of the effect of latitude, elevation, position with reference to the sea, ocean currents, and prevalent winds, and the position and direction of mountain chains. If these are clearly understood, a geographical lesson may be made really educational. By studying the position of a country on the globe and on a good map, its climate may be deduced with very little assistance. This gives the key to its vegetable and animal products, and suggests the occupations of its inhabitants......Besides being influenced by climate and general geographical conditions, the present condition of a country is to a considerable extent the result of its previous history; and history therefore should as much as possible be joined with geography by giving a brief sketch of, at least, its immediately preceding history."

These words adequately express what was in my own mind in sketching the main theme of this book. Further, it is hoped that the somewhat full treatment given to the chief cities and towns—in particular to the causes of their growth—may throw into useful relief their relative importance. One of my aims has been to place each of the large towns into some sort of historical and geographical setting, and to get rid, as far as possible, of that pernicious schoolboy habit of associating the name of a town simply with a black dot on a map, and with some apparently quite arbitrary facts in the text which state for what the place is "famous."

In any case, the very last purpose which this book seeks to serve is that of a gazetteer or post-office guide. One of its

merits, it is hoped, is that it has managed to omit and ignore a multiplicity of names hitherto considered essential in even an elementary text-book of Indian geography.

As an aid towards giving the book "perspective," the less important portions have been put in smaller type. Some of the small type sections might, indeed, with some advantages, have been omitted altogether. They deal, for the most part, with matters which ought to be, and can far more effectively be, learned by the eye from the map; and in my view what the eye can learn for itself should be, as far as possible, excluded from the text. The pupil should learn his Whats and his Wheres from the map, especially his physical map, and his Whys and Wherefores from his book. I have throughout had no scruples in constantly repeating in one place what has already been said in another; and I would rather, in any judgment to be passed on the picture of the Indian Empire here presented, be accused of leaning to the side of caricature than of adhering too closely to the minutiæ of photographic detail.

Lastly, the object of these pages is to give an adequate conception, if possible, of the Indian Empire as a going concern—as a place where nearly three hundred millions of human beings earn their livelihood. From this point of view the book must be condemned or vindicated.

In English and Scottish schools the complaint is constantly made that the subject of geography is tossed into an odd corner of the daily or weekly curriculum, and assigned to any teacher, whether acquainted with the subject or not, who is otherwise disengaged for the time being. And so long as a string of Whats and Wheres in an examination paper is all that is to be prepared for, perhaps this arrangement is the best adapted to the purpose in view. In India a similar complaint that "cram," as opposed to real education, is the *modus operandi* of most school work, has been officially recognized. In my humble opinion a great deal can be effected—I speak of the subject of geography in particular—by prescribing definite and detailed syllabuses for the study of the subject, and by seeing that the examinations are real educational tests, not memory puzzles. How much easier it is to set (and correct) a paper testing a pupil's memory of facts than one which tests his power of thinking!

Of course no book on geography, or on any other school sub-

ject, can be of much use without efficient teachers to expound and bring it home to the pupils, and no teaching can be ultimately of much value which keeps its eyes fixed exclusively on likely questions in a prospective examination paper. In England, in quite recent years, a movement among teachers for improvement in the methods of teaching the subject of geography has gained recognition, and the advance made in this direction is practically a revolution. It will take some time for this revolution to spread to India. I should feel flattered if this book proved, in some measure, the forerunner of what is to come.

Of the deficiencies of this book no one can be more conscious than myself. Some of them are incidental to a book which has to be kept within manageable limits, and which is confessedly the result of a compromise between the old methods and the new. I have been advised, for example, boldly to strike out much of the detailed regional topography. To do so would leave room for much more interesting matter, but it would be to overlook the present requirements of a text-book intended for the use of schools in India and Burma.

One word more: along with this book *a good atlas*, containing both physical and political maps, *should be in constant use*. Without an atlas, it is hopeless to attempt to grasp the physical features of a country, or to follow topographical detail. Mere memory work in these respects is of small geographical value; an intelligent appreciation of geographical facts can be attained only by continual study of, and reference to, the map.

CAMERON MORRISON.

NEWINGTON, MADRAS, 1906.

The usual official authorities have been largely made use of—in particular, Hunter's "Imperial Gazetteer," the 1901 *census reports, and various blue books.*

THE INDIAN EMPIRE.

INTRODUCTION.

By the Indian Empire we mean the whole area of Southern Asia over which the dominion of Great Britain extends.

Geographically, this Empire extends over India proper and Burma, and a few islands off their coasts.

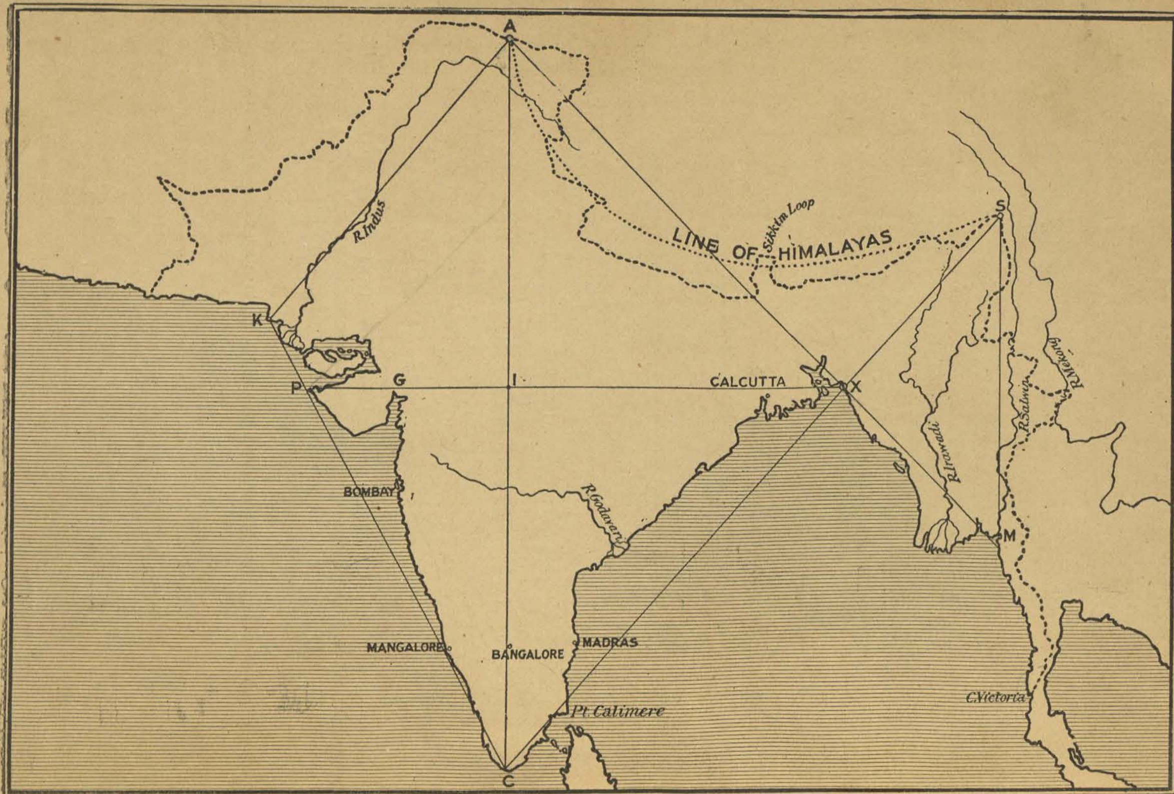
India proper consists of all the lands lying between the Himalayas with their eastern and western offshoots, on the one side, and the Indian Ocean on the other. It is not a single country, but a collection of countries which differ in physical features, soil, climate, productions, and in the races, languages, and religions of the people who inhabit them. The southern half of India consists of a peninsula jutting out into the Indian Ocean.

Burma lies to the east of India proper, from which it is separated by an arm of the Indian Ocean called the Bay of Bengal. It forms part of the Indo-Chinese Peninsula.

HOW TO DRAW THE OUTLINE OF INDIA AND BURMA.

The best way to understand the geography of a country is to learn to draw the outline accurately and neatly. This should be learned from a good map; but it is much easier to draw and to remember the outline, if we have some kind of frame to fit it into.

1. Take a sheet of paper, rectangular in shape, and place it before you so that the shorter edges represent east and west.



SKELETON FOR MAP DRAWING

2. About a third of the length of the paper from the left-hand edge draw a straight line AC perpendicular to the top and bottom edges, and nearly joining them.

3. Find the middle point of this line (I).

4. From I draw a line IX perpendicular to AC, making IX equal to IC. Join AX and CX.

5. With centre C and radius CX draw a semicircle to the north of IX, and with centre A and radius AI draw another semicircle, cutting the former one to the left of AC in K. Join AK and KC.

6. Produce CX to S, making CS equal to CA. Produce AX to M, making AM equal to AC.

7. Produce XI to meet KC at P. Half-way between I and P mark a point G.

We thus get an irregular four-sided figure, AKCX, with two straight lines, XS and XM, sticking out from the right-hand corner. This figure gives us the frame for an accurate map of India and Burma. Join SM.

A stands for the northernmost point of India in Kashmir, K for Karachi, C for Cape Comorin, X for Chittagong, M for Maulmain, S for the northernmost point of Burma, where the Salwin enters Burma, I stands for Indore, P for the end of the Kathiāwar Peninsula, and G for the head of the Gulf of Cambay.

On the line XI Calcutta stands about the same distance west from Chittagong as P is west from G.

The figure gives us all the boundaries :—

1. **Landward.**—(1.) North-west boundary; guiding line AK. (2.) North boundary; guiding line AS. (3.) East boundary of Burma; guiding line SM.

2. **Seaward.**—(1.) West coast; guiding line KC. (2.) East coast; guiding line CX. (3.) West coast of Burma; guiding line XM.

The line XS gives a rough guide to the frontier between India and Burma.

1. **North-west Boundary; guiding line AK.**—The guiding line AK gives us the general line of the Indus, and the valley of the Indus is the natural boundary of India proper. But by treaties with the Amir of Afghanistan and the Khan of Kalat, the British Government has arranged that the boundary shall lie well west of this valley, and the Indian Empire includes the North-west Frontier Province (with Chitral), and Baluchistan, which are all west of the Indus. The outer boundaries of these provinces, where they touch Afghanistan, must be studied from the map.

2. **The Northern Boundary; guiding line AS.**—India is bounded all along the north by the Himalayan Mountain ranges, but the actual frontier line lies sometimes to the north and sometimes to the south of the great peaks. If we draw a downward curve from A to S we get the general line of the Himalayas, but the boundary line of India only roughly follows this curve. (1.) Starting from our point A, the boundary goes for 350 miles in the direction of S, but then turns sharply at right angles nearly south for another 350 miles (crossing the Indus and Sutlej), thus forming, as it were, a great step of a stair. (2.) It then forms another step of the same shape, but of half the size, along the Gharwal Range of the Himalayas and down the Kali River (a tributary of the Gogra). This second step of the stair is important, as it

marks the part of the boundary of India which lies in the United Provinces. (3.) From the point where the Kali reaches the plains, the boundary stretches along the southern face of the Himalayas up to S, with only one break where it forms a loop between Nepal and Bhutan, touching Kanchanjanga, and enclosing the upper valley of the Teesta, which forms the protected state of Sikkim.

3. **Eastern Boundary of Burma; guiding line SM.**—The guiding line is roughly the line of the Salwin, which enters the Gulf of Martaban at Maulmain. (1.) If we draw a figure **S** across this line, starting a little south of S and ending a little north of M, we get the northern half of the eastern boundary of Burma. (2.) If from the point where this **S** strikes the Salwin above Maulmain, we draw a line down the middle of the Malay Peninsula and end it off at Cape Victoria, we have the complete eastern boundary of Burma. The lower curve of the figure **S** just touches the Mekong River, which is the most easterly point of the Indian Empire.

4. **The West Coast; guiding line KPC.**—The secret of drawing this coast correctly is to fix a point on the guiding line two-thirds of the distance between P and C. This is Mangalore, and here the coast cuts the guiding line. (1.) The coast-line from G bulges gradually westwards till it cuts the guiding line at Mangalore, and south of it it keeps a little west of the guiding line till they meet again at Cape Comorin. (2.) A semicircle dipping south connecting P with G gives the north coast of the Gulf of Cambay. (3.) The outline of the Rann and Gulf of Cutch, both of which lie east of the guiding line, must be remembered by the eye. (4.) Having got Mangalore on the west coast, we can mark in Madras, opposite to it, on the east coast, and Bangalore halfway between them.

5. **The East Coast; guiding line CX.**—This coast runs roughly along the guiding line to Point Calimere, after which it leaves it, runs due north past Madras, and does not touch it again till it reaches X. The shape of the figure made by the guiding line and the coast should be carefully studied and remembered by the eye. (1.) Note that the part of the coast between the mouths of the Kistna and Mahanadi runs nearly parallel to the guiding line. (2.) The coast of India opposite Ceylon is rather like a man's face with a Roman nose (Point Calimere) and a protruding lower lip (Rameswaram Island).

6. **The West Coast of Burma; guiding line XM.**—This coast is made up of two parts of nearly equal length, of which the lower (the Gulf of Martaban) lies well east of the upper. The upper part is entirely west of our guiding line XM, and the two parts are joined by the line of the Irawadi delta running nearly north-east.

Cape Victoria, the southernmost point of Burma, is nearly opposite Point Calimere, and the delta of the Irawadi is nearly opposite that of the Godavari.

THE RELIEF OF INDIA.

India proper may be divided into four regions:—1. Region of mountains. 2. Region of plains. 3. Region of table-lands. 4. Coast-strips.

REGION OF MOUNTAINS.

India is separated from the rest of Asia by mountain ranges which can be divided thus:—(1) Himalayas; (2) Trans-Himalayas; (3) Western offshoots; (4) Eastern offshoots.

1. **Himalayas.**—The Himalayas are made up of three roughly parallel ranges.

(1.) *The main or inner range* begins at the peak of Nanga Parbat, and runs in a great sword-like curve to the north-east corner of Assam. It lies in the embrace of two rivers, the Indus turning sharply round its western, and the Brahmaputra round its eastern end.

(2.) *The outer range*, sometimes called the Zaskar Range, runs south of, and roughly parallel to, the main range. At their western end these two ranges open out and enclose the beautiful valley of Kashmir with its Wulur Lake. The outer range is here called the *Pir Panjal.*

(3.) *The outermost or sub-Himalayan range* is not high, and it is in some places separated from the outer range by wide valleys. The *Salt Range* and the *Siwaliks* are separate parts of this range in its western half; in its eastern half it is more distinctly marked, running along the *southern boundary of Nepal and Bhutan.*

2. **Trans-Himalayan Ranges.**—Our point A is a convenient one for fixing these. It is like the top of an open umbrella, from which the mountains curve downward like ribs on either side.

On the West.—(1.) The great *Hindu-Kush Range,* striking south-west into Afghanistan. (2.) Three minor ranges running nearly south from the Hindu-Kush, and separating the valleys of the Kunar, Panjkora, Swat, and Indus rivers.

On the East.—(1.) The *eastern half of the Hindu-Kush* and the great *Kuen Luen Range,* forming the northern limits of Kashmir, and striking due east outside of India altogether. (2.) The great *Karakoram* or *Mustagh Range,* sloping more southwards. (3.) The *Kailas* or *Gangri Mountains,* running south-east across the middle of Kashmir, and keeping north of the Indus.


HIMALAYA MOUNTAINS
English Miles
0 100 200
TURKESTAN
KUEN LUN MOUNTAINS
KASHMIR
Srinagar
TIBET
Indus
PUNJAB
Simla
Patiala
LHASA
Brahmaputra
Palgu Cho
Yamdok Cho
Tengri Nor
NEPAL
KHATMANDU
Bareilly
SIKKIM
BHUTAN
Darjiling
ASSAM
Sadiya
Dibrugarh
90
80
30
1 (K2) Mt. Godwin Austen, 28,278 ft.
2 Masherbrum, 25,600 ,,
3 Dhaulagiri, 26,826 ,,
4 Gaurisankar (Mt. Everest), 29,002 ,,
5 Kanchanjanga, 28,156 ,,
6 Chumulari, 23,929 ,,
7 Muztagh Pass
8 Nitti Pass, 16,650 ,,
9 Lipu Lek P., 16,600 ,,
10 No-la P., 16,600 ,,

The Himalayas are *the loftiest mountain range* in the world, and they contain the highest measured peak, Mount Everest (29,002 feet). Counting from west to east, the following are some of the best known mountains: Nanga Parbat (26,000 feet), Nanda Devi (25,000 feet), Dhaulagiri (26,000 feet), Gosainthan (26,000 feet), Mount Everest, Kanchanjanga (28,000 feet), Chumulari (24,000 feet). These Himalayan ranges form a great *double barrier* between India and Tibet 1,500 miles long, and from 150 to 250 miles broad. On the southern slopes of this barrier there are magnificent forests, steep gorges, and hot valleys; in the middle of it is a great expanse of lofty mountain peaks covered with eternal snow and ice; and on the north there are elevated valleys with but little vegetation.

The Himalayas are not a true water-parting, for many large rivers—the Indus, Sutlej, and Brahmaputra—cut through them from the table-land of Tibet to the plains of India. In this way the Himalayas form a *great reservoir of moisture* for the plains of India. All the rain that falls on the Himalayas, whether on their northern or southern slopes, is carried by rivers into India.

The Tarai.—Along the southern slopes of the outer Himalayas there is a broad belt of jungle grass and forest called the Tarai. Here is the home of wild animals such as the tiger, elephant, rhinoceros, and buffalo. This belt, especially in certain seasons, is most feverish and unhealthy.

3. **Western offshoots.**—On the north the Himalayas and Trans-Himalayas form the edge of the great table-land of Tibet; on the west they send offshoots southwards, separating India from the great Iranian table-land (Afghanistan, Baluchistan, and Persia). These offshoots are:—

(1.) *Three spurs of the Hindu-Kush* (already mentioned), running down to the valley of the Kabul River.

(2.) *The Safed-Koh Range*, lying south of the Kabul River.

(3.) *The Sulaiman Ranges*, running nearly north and south, with a central peak, Takht-i-Sulaiman (Solomon's throne).

(4.) The *Khirthar Mountains*, stretching almost down to the sea near Cape Monze.

Contrast between Tibetan and Iranian Table-land.—The upland country on the west of India differs from the great table-land to the north:—

(1.) *In height.*—The Tibetan table-land varies from 12,000 to 15,000 feet above sea-level, edged on the south by the great Himalayan ranges. The Iranian table-land is only on an average 3,500 feet high, and its edge is formed by comparatively low mountains.

(2.) *As a barrier.*—The Himalayas are practically impassable for an enemy, but the western offshoots are pierced by many passes, through which at least five great invasions have come into India.

Naturally India lies only "as far as the grass will grow" to the east of these offshoots, but for the sake of protection the Government of India has arranged that it shall go beyond the edge and guard the gateways or passes.

4. **Eastern offshoots.**—The Himalayas at their eastmost point (S) seem to be suddenly folded round and to turn south in parallel ranges. These ranges get twisted out of their parallel formation farther south, but form a continuous chain of rugged hills and table-lands stretching from S to M, and then narrowing into a single range running right down the whole length of the Malay Peninsula. This long range is out of India proper altogether, and we leave it at present till we come to consider Burma.

Starting again from S, another mass of mountains runs south-westwards towards X (Chittagong), and then narrows into a long range which gets nearer and nearer the coast till it ends in Cape Negrais. The upper half of this mass divides India proper (Assam) from Burma. It has different names at different places. After leaving S the range is known as the *Patkai* and *Naga Hills*, and farther south as the *Lushai Hills*. Inland from Chittagong is the *Blue Mountain peak*, where Eastern Bengal, Assam, and Burma meet. South of this the long range to Cape Negrais is called the *Arakan Yoma*, but it is in Burma. Half-way between S and X the Patkai Range gives off spurs to the west—namely, the *Jaintia*, *Khasi*, and *Garo Hills*, forming the southern and hilly part of Assam.

REGION OF PLAINS.

This is the great Indo-Gangetic plain, or simply "the plains," which lies at the foot of the Himalayas and their western and eastern offshoots. It includes the valleys of the Indus and its tributaries, of the Ganges and its tributaries, and of the Brahmaputra. At its western end it rests on the Arabian Sea in the Indus delta, and at its eastern end on the Bay of Bengal in the Ganges delta.

Boundaries: *Outside edge.*—*W*. The line of the Khirthars and Sulaimans up to the Salt Range where the Indus enters the plains. *N*. The great curve of the Sub-Himalayas from the Salt Range right up the Assam valley to where the Brahmaputra bends into the plains. *E*. The outer or western edge of the Garo and Lushai Hills.

Inside edge.—*W*. A line drawn from the Rann of Cutch to the north end of the Aravalli Hills. *S*. Thence, in a sweep, just south of the Jumna and Ganges, to the bend of the Ganges at the Rajmahal Hills. *E*. Thence to the western end of the Ganges delta.

Cause and Character.—The whole of this plain region is *alluvial*—that is, its soil consists of fine mud and sand washed down by the three great rivers and their tributaries, and spread on the low-lying land. Hence it is very fertile, and a great part of the soil is renewed every year by floods. The mud brought down from the hills has been rubbed so fine that "it is possible to go from the Bay of Bengal up the Ganges, through the Punjab, and down the Indus to the sea, over a distance of 2,000 miles and more, without finding a pebble, however small."

This soil is also very *deep*. In the Ganges delta near Calcutta engineers have bored down through layers of mud, sand, and clay for nearly 500 feet without coming to rock.

This region is also very *flat*. It is possible to travel along the middle of this vast plain from the Ganges delta to that of the Indus without once seeing the smallest hill or ever rising 700 feet above sea-level. Agra, half-way between the two deltas, and 1,300 miles by river from the sea, is only 550 feet above its level. This flatness makes the rivers flow slowly, thus fertilizing the country thoroughly, and affording easy waterways. But though the soil throughout the Indo-Gangetic valley is alluvial and fertile, the western part of it in the Indus valley gets very little rain, and is therefore very little cultivated.

This region is also very *large*. It is equal in size to France, Austria, Germany, and Italy put together. It contains more than one-third of the land of India proper, and nearly two-thirds of the population.

REGION OF TABLE-LANDS.

South of the region of plains is the region of table-lands, which occupy the whole peninsula of India except the narrow coast-strips. This region can be divided into two: (1) the table-land of the Deccan; (2) the table-land of Central India.

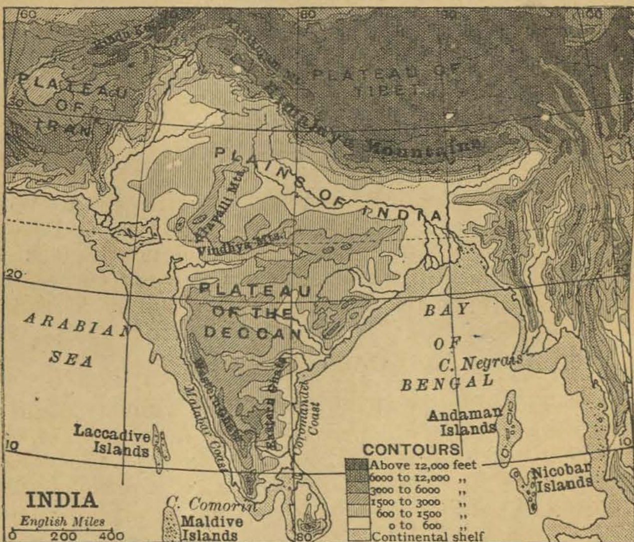
1. **The Table-land of the Deccan** is triangular in shape, with its apex looking south, and is bounded on its three sides by mountains; on the west by the Western Ghats, on the east by the Eastern Ghats, and on the north by the double line of the Vindhya and Satpura Mountains. "Deccan" means "south," and the Deccan means the country to the south of Hindustan or the plains.

Western flank.—The *Western Ghats* run from the south of the Gulf of Cambay right down the west coast. They are, on an average, nearly 4,000 feet above sea-level, run without a break, and keep close to the sea.

Eastern flank.—The *Eastern Ghats* run down the east side of the peninsula, but they are not such a distinct flank as the Western Ghats, because they are lower, have several breaks, and allow rivers to cross them. Also, they do not keep close

to the coast, but gradually slope across the peninsula to meet the Western Ghats in the high *Nilgiri Hills*. Dodabetta (8,760 feet), the highest peak of the Nilgiris, may be called the apex of the triangular Deccan table-land.

Northern flank.—The northern side of the triangle is not sharply marked except for about a third of the way across. From the Gulf of Cambay the *Vindhyas* on the north, and the *Satpuras* on the south, run right inland parallel to each other.



A third of the way across these ranges get broken up into rough uplands, the Vindhyas being continued in the *Kaimur Range* and the *Rajmahal Hills*, which stretch right up to the Ganges. The Satpuras also break up into detached ranges, such as the *Gawilgarh Hills*, *Mahadeo* or *Pachmari* and *Amarkantak Hills*, and the *Maikal Range*, and end in the wild highlands of Chutia Nagpur.

The table-land lying inside these three flanks is a part of India quite distinct from the low-lying Indo-Gangetic Plain. It is raised from 1,000 to 3,000 feet above sea-level, the lowest parts being on the east and the highest on the west and south. Its slope is therefore eastwards to the Bay of Bengal.

Passes.—The steep buttress of the Western Ghats is pierced by two passes—the *Thal Ghat* (under 2,000 feet), a little to the north-east of Bombay; and the *Bhor Ghat* (over 2,000 feet), a little to the south-east of the same city. Just south of the apex of the triangle at the Nilgiri Hills there is a curious opening across the Western Ghats, 20 miles wide and only 1,000 feet high, called the *Palghat Gap*. Through these passes in modern times railways have been built to connect the table-land with the rest of India. The east side of the table-land being much lower than the west, and the Eastern Ghats being more broken up than the Western, there are several easy passages from this side into the interior.

2. **The Table-land of Central India** lies to the north of the Deccan, and is, roughly, shaped like a long triangle.

Boundaries.—*W.* The Aravalli Hills, stretching north-east across Rajputana, and the Malwa Ghats, which join the south end of the Aravallis (Mount Abu, 5,650 feet) with the western end of the Vindhyas. *S.* The line of the Vindhyas and Kaimurs. *N.* Not bounded by any range, but sloping gently down to the Jumna and Ganges valley. The south-west corner of this table-land, between the Aravallis and Vindhyas, is called the Malwa plateau.

COAST-STRIPS.

West.—From the head of the Gulf of Cambay, right down the west coast to Cape Comorin, there is a flat strip of country lying between the hills and the seashore. It is divided into two parts—the *Konkan*, or northern, and the *Malabar Coast*, or southern half. Its average width is only about 40 miles.

East.—From the delta of the Ganges to Cape Comorin there is a similar strip lying between the Eastern Ghats and the Bay of Bengal. It is much broader than that on the west coast, especially in the south, where the Eastern Ghats slope away from the coast across the peninsula. This broader part is called the *Carnatic*, and the whole coast is the *Coromandel Coast*. The western coast-strip has no large rivers flowing through it, but the eastern is made rich by the fertile deltas of the *Mahanadi*, *Godavari*, *Kistna*, and *Kavari*. The soil of the coast-strips is, like that of the plains, alluvial.

General Relief.—We can obtain a good idea of the relief of the land of India if we suppose the whole of it were sunk some 900 feet below its present level. What would be the

result ? Our region of plains and our coast-strips would disappear below the water. Our region of mountains would remain unchanged, but they would be washed by a great sea, separating them from the present region of table-lands, with a small estuary into which the Indus would flow in the north-west corner, and a broader and longer one (the Assam valley) receiving the Brahmaputra in the north-east corner. The table-land region would become a triangular island, with the Vindhyas and Western and Eastern Ghats for its coasts, and with one peninsula (the southern end of the Western Ghats) pointing south and another (the Aravalli Hills) pointing north. The east coasts of this island would be indented with gulfs representing the lower valleys of the present Deccan rivers.

COASTS AND ISLANDS OF INDIA.

Coasts of India.—A glance at the map will show two great differences between the seacoast of India and that of almost every other country—namely, (*a*) it is broken by very few inlets of the sea; (*b*) it has very few islands round it. The sea round the coast of India is very shallow, and the shores are usually flat and sandy. These two facts make the few inlets and straits that exist of little importance. These inlets and straits are: (1) the Rann of Cutch (divided into the Great Rann and the Little or Eastern Rann); (2) the Gulf of Cutch; (3) the Gulf of Cambay; (4) the backwaters of Cochin and Malabar, all on the west coast; (5) the Palk Strait and the Gulf of Manaar, between India and Ceylon; (6) the Pulicat, Kolar, and Chilka Lakes, on the east coast; (7) the inlets of the mouths of the Ganges. Judging by their size on the map these look important, but they are really not so. None of them are of any use for the navigation of large vessels.

The two *Ranns of Cutch* have together an area of 9,000 square miles, but they are very shallow and little more than swamps in the rainy season. In the hot season they are dry, barren stretches of salt sand, the haunt of wild asses.

The *Gulf of Cutch* is little better. Only in certain seasons is it connected with the Ranns.

The *Gulf of Cambay* is also very shallow, and is gradually silting up. Owing to this the town of Cambay, at the head of the gulf, and other towns on its shores, have lost nearly all their former trade.

The *Backwaters of Cochin and Malabar* are lagoons connected together and joining some small rivers on the coasts, with outlets to the sea. They are important waterways as far as they go, but they are only fit for small boats, canoes, and rafts.

The *Pulicat, Kolar,* and *Chilka Lakes* are scarcely worth notice. They are all shallow inland lakes of brackish water, of no great size, connected with the sea by channels which are easily choked up with sand and silt except in the rainy season. In the days, however, before European commerce was established, Arab traders resorted in great numbers to the small natural harbours formed by gaps in the lagoon breakwater; and at that epoch Quilon and Alleppi, Cochin and Kranganur were great trading-centres, whence a considerable commerce was carried on by sea with the ports of Arabia and the Persian Gulf.

The inlets forming *the mouths of the Ganges* also look more important than they are. For miles to seaward of them the water is very shallow, and only in flood time are they of much use for navigation.

The *Gulf of Manaar* and *Palk Strait* (which is nearly blocked by the Rameswaram Island, the rocky reef called Adam's Bridge, and the island of Manaar) are also very shallow, and are useless for big steamers, which have in consequence to go round by the south of Ceylon.

Islands of India.—The chief islands connected with India are :—(1.) The island of *Ceylon*, which is not connected politically with India. (2.) The *Laccadive* and *Maldive Islands*, lying to seaward, the former off the Malabar coast, and the latter off the east coast of Ceylon. These are groups of islands formed by the coral polyp, or "insect," from the lime in the sea-water. They are very flat, scarcely rising 20 feet above sea-level; very barren, except for the growth of cocoa-nut trees, which thrive well; and some of them are mere sand-banks or bare rocks. The Maldive Islands are joined to Ceylon for purposes of administration. (3.) The islands of *Rameswaram* and *Manaar*, between India and Ceylon; not important, except that the former is a famous place of Hindu pilgrimage. (4.) At the mouth of the Ganges are one or two flat, swampy islands, really parts of the delta. *Sagar* and *Diamond Islands* are the chief. (5.) The islands of *Bombay* and *Salsette*, which, with some others, form Bombay harbour. These are small but important, as they protect its shipping from the storms and monsoon of the Arabian Sea.

Sea-Currents.—During the summer monsoon months a sea-current runs northward along both coasts, carrying sand with it. On the west coast this sand is carried into the ports, which are apt to get blocked up in course of time. This also explains why the Gulf of Cambay and the Ranns of Cutch are becoming shallower. On the east coast the same thing

happens, and the sea here is very shallow for a long distance out from the shore. Thus vessels on the east coast have to lie in "roads" or anchorages sometimes three or four miles out. Madras harbour is in constant danger of being blocked up by sand, and an attempt is being made to turn its entrance northwards, so as to avoid the sea-current. The shallow water along the mouths of the Ganges is also caused by the sea-current meeting the fresh water of the river and causing it to deposit its silt. The estuary of the Hugli has constantly to be dredged in order to keep a passage clear for vessels.

CLIMATE AND RAINFALL OF INDIA.

Climate is a general word which includes warmth and cold, wind, rainfall, cloudiness, and other conditions of weather. It depends chiefly on seven things: (1) *latitude;* (2) *altitude;* (3) *nearness to sea;* (4) *direction of prevailing winds;* (5) *direction of mountain ranges;* (6) *dryness and dampness;* (7) *nature of the soil.* India is so large, and the seven conditions here given vary so much in different places, that we cannot speak of India having *a* climate. It has different climates in different places, and the climate of each of these places changes in different parts of the year. This is the case with every large tract of land in the world, but it is more true of India than of any other.

1. **Latitude, or Distance from the Equator.**—The south of India, including the whole of the peninsula, is in the Tropics, and the northern half in the Temperate Zone. Hence India, as a whole, is an excessively hot country, and, on the whole, the heat gets less as we go north. Thus Trichinopoly, in the south of the peninsula, has an average temperature for the year of 82° F.; Bombay, half way up, a temperature of 80°; and Karachi, in the north, one of 77°. The Tropic of Cancer, separating the Torrid from the Temperate Zone, passes across India about 70 miles north of Calcutta and the head of the Gulf of Cambay.

But mere distance from the equator is not everything. Owing to the motion of the earth, the sun strikes the northern hemisphere more directly during one part of the year than during another. In May and June the sun at midday is

getting directly overhead at places nearer and nearer the Tropic of Cancer, till on June 22 he is directly overhead at places on that line. This means that in the peninsula, and at places a little north of the line, it is very hot during May and June. But, again, during those months the sun is longer above the horizon the farther we go north. Hence, in places just north of the tropic, we have not only a vertical sun, but longer hours of sunshine than in places farther south. Therefore places a little north of the tropic will be hotter than places south of it. In other words, the great Indo-Gangetic plain (our second region) will, in May, June, and part of July, be hotter than places farther south, for two reasons—(1) the sun is higher; (2) he stays longer above the horizon. Conversely, in the winter months, places north of the tropic will be much colder than those south of it, for a double reason—(*a*) the sun does not rise so high; (*b*) he does not shine so long. In May and June the thermometer rises three or four degrees higher in Allahabad than it does in these months in Madras; but in January and December it falls 20 degrees lower.

2. **Altitude.**—The temperature of a place depends on its height above sea-level—the higher a place is, the lower is its temperature. Thus, as a rule, places on the plains are hotter than places on mountains or table-lands. On the highest peaks of the Himalayas, although the sun be shining brightly, the ice and snow never melt—it is always freezing. At Ootacamund cricket ground, in the Nilgiri Hills, in May, when the midday gun fires, the sun is directly overhead, and the wickets have no shadow, but it is not much warmer than it is in England at the same time. This is owing to the height of Ootacamund (7,200 feet) above sea-level. The thermometer, the instrument by which we measure temperature, falls 1° F. (one degree Fahrenheit) for every 333 feet of rise above sea-level.

3. **Nearness to the Sea.**—The sea is the great equalizer of temperature all over the world. It warms the cold countries which it touches, and cools the hot ones. The reason of this is as follows: water requires a greater quantity of heat to raise its temperature than any other substance. The heat which raises a kettle of water on the fire to boiling point (212° F.) would raise any other substance of the same weight to a much higher temperature. And just as water absorbs a great quantity of heat in order to raise its temperature even slightly,

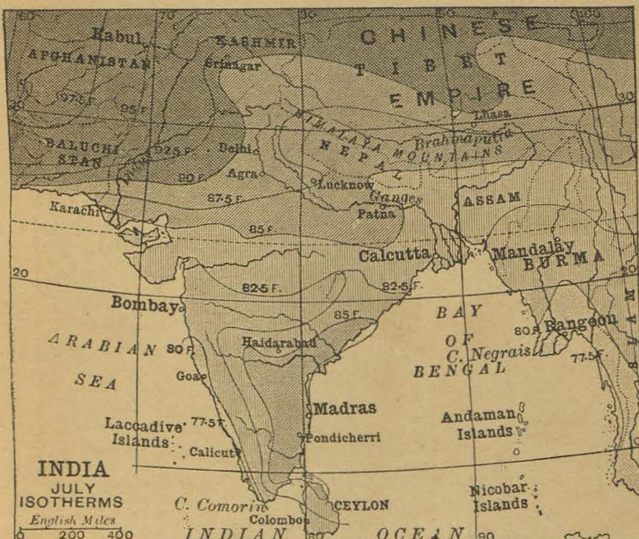
so it gives out a great deal of heat without getting much cooler. To put it shortly, water, or the sea, gets heated slowly and cools slowly. Land, on the contrary, heats quickly and cools quickly. Thus in India the coast districts have a much more equable climate than those inland, because the sea prevents the coast districts getting so much heated as they would otherwise do. This is one of the reasons why in May the heat of the plains far from the sea is always greater than that of places on the coast, and why in the cool months of January and February it is always less. The sea prevents Bombay from getting so



hot as Lahore in the hot months, and from getting so cold in the cold months. In India, on a hot day, a stone, or the ground, exposed to the sun, is sometimes almost too hot to touch; but water always feels cooler than the hand. This shows how much more slowly water gets heated than other substances.

4. **Direction of Prevailing Winds.**—The climate of a country is also much influenced by the direction and nature of the prevailing winds. In the northern hemisphere, if

these winds come from the north, they will as a rule be cold; if from the south, warm: if they blow from the land, they will generally be dry; and if from the sea (the great source of moisture), they will be damp. India, as we shall see, owes everything to its prevailing winds. As it is a peninsula projecting far into the ocean, all winds that come to it from the southward will be moisture-bearing winds. Most fortunately there are no really north winds in India. Winds do not often come from a higher to a lower level, and, besides, there is the great barrier of the Himalayas. Thus India is



saved from the drying blasts that blow over Tibet and keep it barren and bleak.* At the western end of the Indo-Gangetic Plain, in the spring months, there are, indeed, cold, dry, north-western winds from Baluchistan, which keep the climate in those months very cool; and when these winds stop, they

* Owing to the protection of the Himalayas, the plains of India, during the winter months, enjoy a milder climate than the plains of China in the same latitude, for the latter are not protected from the cold north winds.

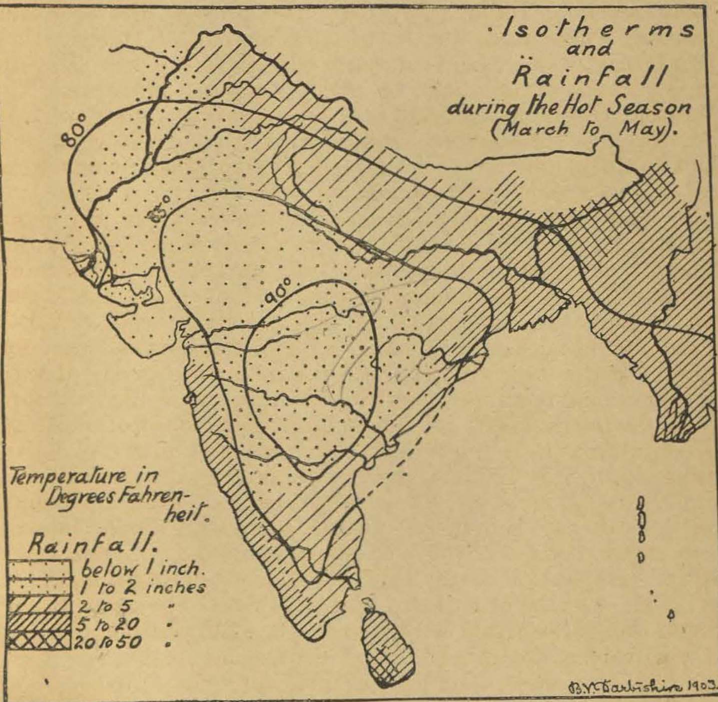
allow the south-eastern wind to bring up rain for the spring crops. As we shall see, the prevailing winds in India are moisture-bearing winds from the ocean.

5. **Direction of Mountain Chains.**—Mountains have a great influence on climate in either turning or stopping winds, and in catching the vapour of moisture-bearing clouds. We have already seen how the Himalayas stop the cold northern blasts from reaching India; but they also prevent the moisture-bearing winds from the ocean passing out of India. They bend them along their southern edge right up the Gangetic valley, and drain them of every drop of moisture. The Western Ghats, as we shall see, have a very similar work to do for moisture-bearing winds from the south-west, but luckily they are not high enough to stop these winds from passing over them into the Deccan.

6. **Dampness and Dryness.**—The hotter air is, the more moisture it can hold. By dampness we mean not merely the amount of moisture in the air, but the amount it contains compared with the amount it can hold at its temperature. Air which is very hot may have much moisture in it, but it is not damp, because it can hold much moisture and is *thirsty* for more. If the same air were cool, it would no longer be thirsty air, but would readily give out its moisture and would be damp. It is the *thirstiness* of the air and not the amount of moisture it contains that is important. For example, in the plains of India during the hot months the air is very dry and *thirsty*, and sucks up moisture from everything. It dries up plants and kills them. But it is much less distressing to the human body than cooler air which is damp, because it quickly dries up the perspiration of the skin, and this evaporation makes it feel cool. On the other hand, in places where the air is damp, vegetation is not shrivelled up so much. But the perspiration of the body is not dried up, and we feel hot and uncomfortable. Most people would prefer the hot, dry, thirsty air of the Punjab in May, at a temperature of over 100°, to the damp atmosphere of the west coast (say Malabar or Cochin) in the same month, though the temperature is 10 or 20 degrees cooler. The Bengals,* Assam, the islands in the Bay of Bengal, and the west coast are places with a damp climate, and there we

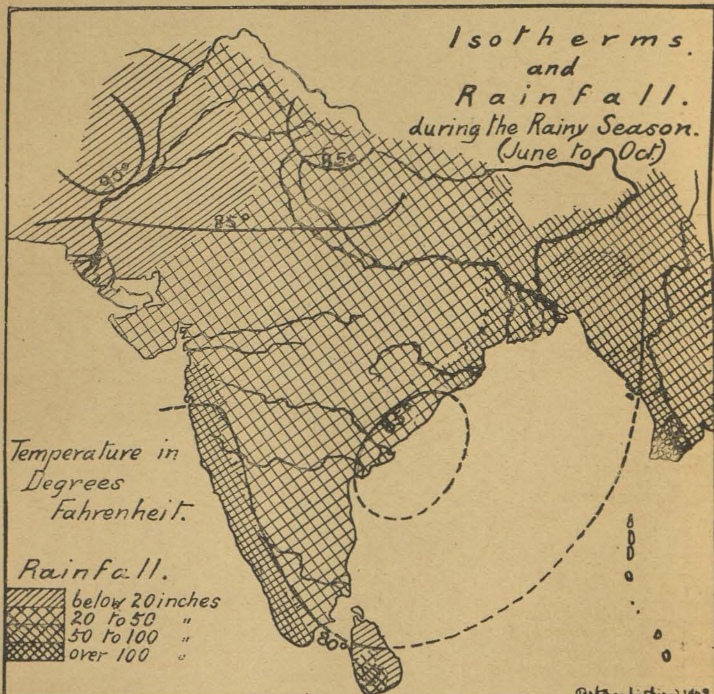
* In this book "the Bengals" means the old Province of Bengal—that is, Bengal proper *plus* the Eastern Bengal part of the new province.

find vegetation, especially trees, flourishing. The dry parts are Baluchistan, the Punjab, Rajputana, Gujarat (the parts away from the coast), and Central India. Places across the Himalayas, such as Leh in Kashmir, are also very dry. In these places there is very little vegetation, and the trees are few and small.



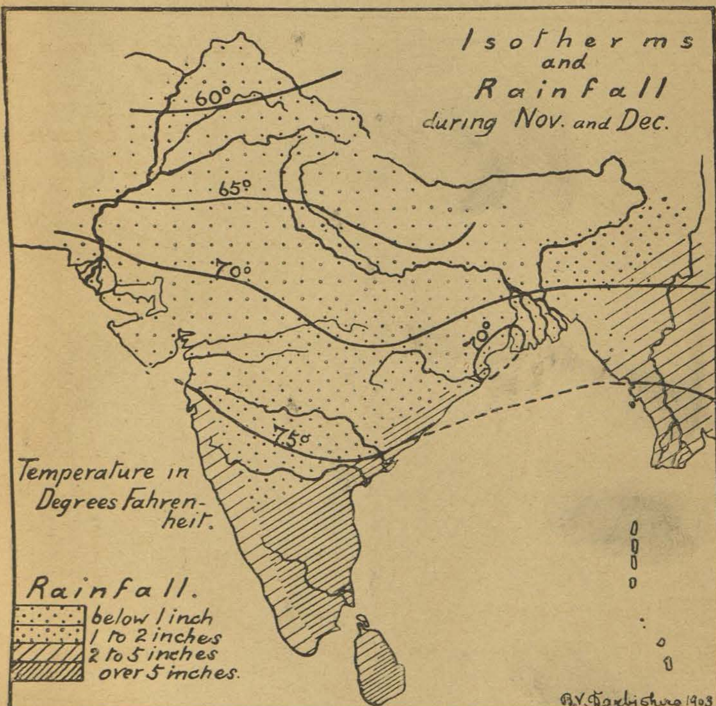
7. **Nature of the Soil.**—The climate of a country, or of a particular place, is also influenced by the nature of its soil. Sand is the opposite of water, being very quickly heated and quickly cooled. Thus, in the lower parts of the Indus valley, the sun beating on the desert sand makes the day very hot; but at night the heat is very rapidly radiated in the dry air, and it is often cold enough to freeze water. From this region

hot winds blow eastwards, often causing dust and sand storms in the hot weather. If the soil is clayey it will hold a great deal of water below the surface, and will only give it up very slowly. One reason for the fertility of the Ganges valley is that the soil, being mixed with clay and finely powdered, retains the rain, which easily sinks deeply into it. In the alluvial soil of



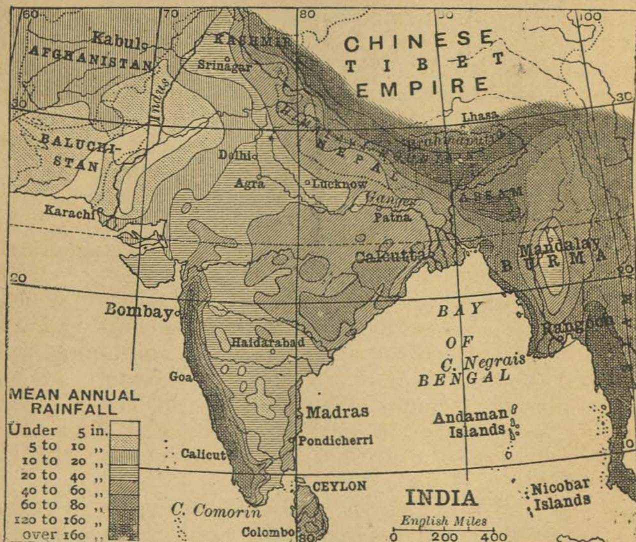
the coast-strips water can easily be got by sinking wells. On rocky soils the heavy rainfall quickly runs off the surface into nullahs, and is lost. Almost all of the Deccan table-land (except the north-western part) is made up of a soil lying on the top of hard crystalline and sandstone rocks which allow the rainfall to disappear quickly into the rivers. Some parts of India, especially the north-west part of the Deccan, are blessed with

a peculiar kind of soil, called black cotton soil, which retains the moisture for a long time after the sun has baked its surface. One reason why the Government of India has undertaken the preservation of forests is because it is found that if the forests are allowed to be burned and cut down, the soil cannot retain the moisture, which is quickly evaporated, or runs off and is lost.



Thus, if we wish to find out the climate of any part of India, we must know several things about it—how far is it from the equator ?—how much above sea-level ?—is it near the sea or far inland ?—what are the prevailing winds ?—do they blow from the sea or the land ?—is it protected from moist sea-breezes by mountains ?—is it situated in dry, sandy soil, or in the midst of forests ?

Again, if we wish to know the climate of a place in India at any particular time of the year, we must remember that (1) if it lies north it will be hotter in summer and colder in winter than its position north of the equator would lead us to believe; (2) if it lies in the path of moisture-bearing winds it will be cooler and damper, when these winds blow, than other places farther north which do not get these winds.



THE MONSOONS.*

Cause of the Monsoons.—The changes of the monsoon depend on a simple principle—namely, that air has weight or pressure, and that it always flows from a place where the pressure is greater towards one where the pressure is less. This flow of air is called wind, and the strength of the wind depends on the greater or less difference in air pressure between the place from which it comes and the place to which it goes. The chief cause which alters the pressure of the air is heat:

* Monsoon, Arabic *mausim*, means "season," and the monsoon is therefore the seasonal wind.

if air is heated it expands, and its pressure is lessened. The pressure of air is measured by the barometer.

Now, as we have seen, in Northern India during March, April, and May the heat is very great; there is, therefore, a great mass of heated air lying over the land, and as this air gets hotter, it expands and rises, and its pressure gets less. At the same time, in the ocean south of the equator, where the sun's rays at this season are more sloping and therefore not so hot, there is an increase of pressure. Consequently, a great flow of air (wind) gradually sets in from the southern ocean towards India. As this wind blows over thousands of miles of sea-water, it is full of moisture. This moisture-bearing wind is called the south-west or summer monsoon.

There is another law of the atmosphere which we must remember. It is that the amount of moisture which the air can hold in an invisible form (vapour) depends on the temperature of that air: the hotter the air is, the more vapour it can hold; and, conversely, if air containing vapour be cooled, some of its moisture is condensed in the form of rain or dew. Ordinary air always contains a certain amount of moisture which we cannot see. If a vessel be filled with ice, a heavy dew soon gathers on its surface, because the vessel containing the ice has cooled the air round it: the air can, therefore, no longer hold its moisture, which is deposited on the vessel. Rain is "stronger" or heavier in warm countries like India than in cold, because there the warm air can hold more moisture suspended in it.

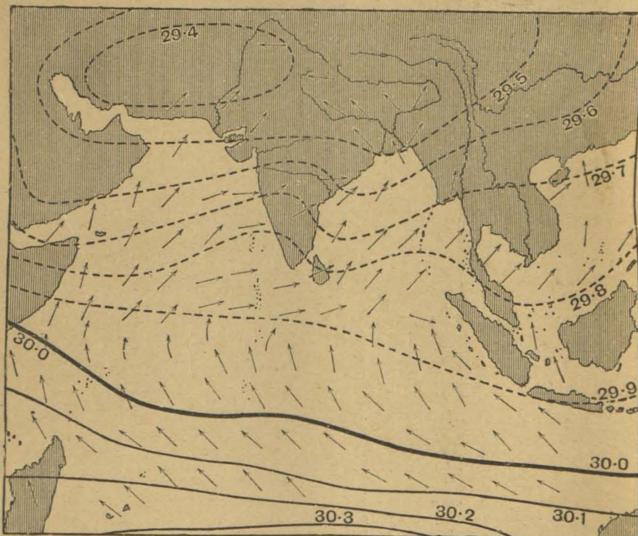
Now the land to which the moisture-bearing wind rushes is really hotter than the wind, and so would naturally heat it as it passes over, and thus allow it to take up even more moisture. But though the land as a whole is hotter, the mountains, being high, are much cooler. Therefore, when the monsoon comes to mountains it will be cooled when it tries to cross them, and the vapour it carries will be condensed and fall in the form of rain. This is exactly what happens.*

Arabian Sea branch of the Summer Monsoon.—As the monsoon comes rushing up from the south-west, it strikes the line of the Western Ghats nearly at right angles. It is forced to

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* Moisture-bearing air, when ascending mountains, not only goes into a cooler region, but into one where the pressure is less. It therefore expands, becomes cooled by doing so, and the vapour contained in it is condensed.

ascend these Ghats, and, the temperature on them being much cooler than the ocean, the moisture in the wind is very rapidly condensed, and falls in torrents of rain. This monsoon blows during June, July, August, and September, and during these months over 100 inches of rain, on an average, fall on the Ghats and the strip of coast between them and the sea. The force of the wind is often very great: as it passes over the



THE SOUTH-WEST MONSOON.

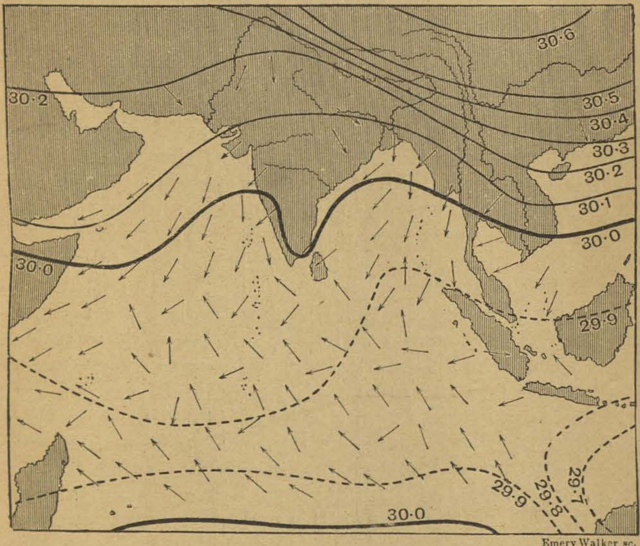
Ghats it is sometimes strong enough to blow a man on horseback over. During the height of the south-west monsoon the sea on the west coast is very stormy, and the few harbours are closed.

But the monsoon passes over these mountains, and though it loses much of its moisture there, it has still some to spare for the Deccan table-land. The rainfall here is, however, very much smaller than on the Ghats. On the seaward face of the Ghats the rainfall is over 100 inches, while just a few miles inland it falls to about 25.

Farther up the coast, however, the shape of the land is different. At the north end of the Western Ghats the Satpura

and Vindhya Mountains run at right angles to the coast. Here, therefore, the monsoon, running between these ranges as through a funnel, will get farther inland before it is cooled, and it will be discharged on these hills and on the other ranges which continue them.

Still farther north again, in the part of the coast between Cambay and Karachi, we see there are no mountains to catch the monsoon. Instead of them we have a hot, flat plain



THE NORTH-EAST MONSOON.

stretching right up to the foot of the Himalayas. Hence, at this part, the monsoon, finding no obstruction, rushes straight across without shedding any rain till it reaches the slopes of the Himalayas, where, as in the case of the Ghats, it meets with a colder temperature, and deposits its moisture in the form of rain. This is the reason why the part of India lying inland west of the Aravallis, and to the north and north-east of the coast between Cambay and Karachi, is so arid and barren. It is here that we find the Great Indian Desert. Some parts of Sind receive only 3 inches of rain in the year.

There is one range of hills on the edge of this region—the

Aravallis — and here there is more rain than on the plain. Mount Abu, the highest peak, gets an average of 60 inches.

Baluchistan, on the Iranian table-land, is very dry. The country to the west of the Sulaimans is outside the path of the monsoon, and is therefore almost rainless.

Bay of Bengal branch of the Summer Monsoon.—Another branch of the monsoon comes up the Bay of Bengal laden with moisture. One part of it strikes Burma, and meets the mountains. All the Burma mountains have, like the Ghats, a very heavy rainfall, and the strip of country between them and the sea is the wettest part of the Indian Empire.

But that is not all. The monsoon also strikes the Ganges delta, and the Garo, Khasi, and Jaintia Hills. Here the rainfall is very heavy. The monsoon has suddenly to ascend a height of 5,000 feet at Cheera Pungi on the Khasi Hills, and the torrents of rain that fall at this station are the heaviest in the world. The average is 480 inches, and in 1861 no less than 805 inches, or 67 feet, were registered!

Beyond this the monsoon current is checked by the barrier of the Himalayas. One branch rushes up the Brahmaputra valley, which is one of the wettest districts of India. The other branch is turned by the Himalayas, and passes up the Ganges valley. This part of the monsoon is very important, as it gives rain to the most fertile and thickly populated part of India. Three things ought to be noted about it:—(1.) Being bent round by the Himalayas, it blows up from the bay, and is thus a south-east monsoon in this part of India. (2.) None of it gets beyond the Himalayas. Murree, a hill station on the south face of the mountains, receives about 34 inches in the four monsoon months, while Leh, which lies beyond them, only gets a little more than 1 in the same time. (3.) It generally gets weaker and weaker as it passes up the Ganges valley, and it gives more rain on the north side of the valley, next the Himalayas, than on the south side.

During the monsoon, Dacca, at the eastern end of the Indo-Gangetic valley, receives about 50 inches, while Peshawar, at the other end, receives only 4½. Half-way up the valley, Agra, on the south side of the valley, receives 23 inches; Bareilly, on the north side, 36.

The snow-line is lower on the southern than it is on the northern slopes of the Himalayas. In other words, snow is more easily and plentifully formed on the side where there is much moisture than on the side where the air is dry.

The North-east or Winter Monsoon.—The south-west monsoon blows for four months—June, July, August, and September. By the end of September the pressure of the air in Northern India and Burma has risen. The consequence is that the moisture-bearing south-west current of air, still blowing into the Bay of Bengal, cannot penetrate into these high pressure regions, turns round the area of low pressure, now lying over the bay and not in Northern India, and strikes the southern end of the peninsula. It will strike this part of the land from a north-easterly direction, and it is called the north-east monsoon, though it is really the bay branch of the south-west monsoon turned round, and is better named the winter monsoon. This monsoon gives rain to the districts north and south of Madras. This is fortunate for these districts, as they are very little helped by the south-west monsoon. The east coast districts, south of Madras city (unlike those on the west coast), get half their annual rainfall in October and November.

Storms.—Besides the monsoons, there are heavy storms of rain which sweep across the country and give a deal of rain to parts of India. In the months of July, August, and September, storms often come up from the Bay of Bengal and strike across India in a westerly direction, giving rain to the thick part of the peninsula towards the Satpuras, and even up to the Aravallis. In March, April, and May, similar rain-storms occur in Bengal.

Winter Rains of Northern India.—The large amount of snow on the Himalayas, and cold, north-westerly winds from the Iranian table-land, cool the damp air in the north-west of India, and produce rain on the Lower Himalayas, the Punjab plains, and the United Provinces in winter and early spring. During this part of the year the extreme north-western districts receive more than half their rainfall.

Distribution of Rainfall in India.—Summing up, we can divide India into four great regions of rainfall :—

1. *Indo-Gangetic Plains.*—The Ganges valley from the delta up to the Jehlam, and including the Surma and Brahmaputra valleys, is a well-watered area; the rainfall is very heavy at the eastern end, and gets smaller as we go westwards. It is also heavier in the northern than in the southern half of the valley. Eastern Bengal and the Brahmaputra valley are thus safe from famine.

2. *Coast-strips.*—(1.) The *west coast* from the Tapti to Cape Comorin is splendidly supplied with rain, and has an average of over 100 inches. Famine is unknown on this coast. (2.) The *east coast* from the Ganges delta to Cape Comorin is fairly well supplied, as it gets rain in both monsoons and in storms; its average is nearly 50 inches.

3. *The Table-land Region of the Deccan and Central India.*—Here the rainfall is small and uncertain, except in the north-east corner, including the Central Provinces and Chutia Nagpur.

4. *The Dry Area.*—The Indus valley, with Baluchistan on one side and Western Rajputana, up to the Aravallis, on the other, is very dry. A great part of the country is therefore rainless and desert.

EXAMPLES OF CLIMATE.

REGION OF MOUNTAINS.—HIMALAYAS.

Leh in Kashmir.

Latitude.—About 34° N., therefore well within the Temperate Zone.

Height.—11,500 feet above sea-level, therefore barometer stands usually below 20 inches—that is, nine inches lower than a barometer at sea-level. The mean temperature for the year is only 40° F.

Nearness to Sea.—Leh is 1,000 miles from the sea, and has, therefore, a continental climate—that is, the sun in summer is hot, and in winter the thermometer sometimes falls below zero.

Prevailing Winds.—The winds at Leh are generally light, as the place is shut in by mountains and quite removed from the influence of the monsoons. The air is very dry, hence when the sun is shining it is very hot, but after night-fall the cold is intense.

Direction of Mountains.—The Himalayas shut out the monsoon, hence Leh is one of the driest spots in the world. The rainfall and snowfall together only amount to about 2½ inches in the year. Hence agriculture is entirely dependent on irrigation.

Nature of Soil.—There is little vegetation to retain the moisture.

Simla.

Latitude.—About 31° N., therefore well within the Temperate Zone.

Height.—7,000 feet above sea-level. The barometer stands usually about 23·2 inches. The mean temperature for the year is 55° F.

Nearness to Sea.—Simla is 700 miles inland, and the sea has no influence on its climate. June is hot, but January is cold.

Prevailing Winds.—Simla being among the hills, the winds are light, except in the monsoon.

Direction of Mountains.—Simla lies on the outward face or spurs of the Himalayas, which receive the full force of the summer monsoon. Its rainfall is

70 inches on the average, and of these 50 inches fall during the monsoon. In August it rains two days out of three.

Nature of Soil.—The hillsides near Simla are bare, but in the station itself many trees have been planted, which retain the moisture.

REGION OF PLAINS.

Jacobabad in Sind.

Latitude.—About 28° N., or about 5° north of the Tropic of Cancer, therefore close to Torrid Zone.

Height.—160 feet above sea-level on the Indus plain; so has none of the cool climate of elevated places like Leh and Simla.

Nearness to Sea.—About 250 miles from sea, and out of its influence.

Prevailing Winds.—The wind mostly comes from the dry highlands of Baluchistan, which keeps this part of Sind very parched. In the summer monsoon the wind is, of course, from the south-west, but little or no rain falls, as there is no opposing hill-face to arrest and condense the moisture; therefore Jacobabad only receives about 4 inches in the year. The dryness of the air in this part of Sind is very great, hence in summer the heat is intense, and Jacobabad is the hottest place in India. The thermometer has been known to touch 120°. In winter again, for the same reason, the nights are very cold, and water sometimes freezes.

Nature of the Soil.—Sind as a whole is a sandy and stony waste, which is quickly heated by the sun in the day, and quickly radiates the heat at night. Just round Jacobabad, however, there is some irrigation from the Indus; magnificent trees flourish, and crops are reaped. This prevents the place from being so disagreeable to live in as it would otherwise be.

Lahore in the Punjab.

Latitude.—About 32° N., and therefore in Temperate Zone. Average temperature 75° F.

Height.—Only 730 feet above sea-level on the Indo-Gangetic plain. Its height is insufficient to lower its temperature.

Nearness to Sea.—Its distance inland is too great to allow the sea to have any influence. Hence the climate of Lahore is very hot in summer and cold in winter. In the hot weather the thermometer rises as high as 117°, and in winter sinks to nearly freezing-point at night.

Prevailing Winds.—From April to June a hot, dry wind blows from the west; in June, July, August, and September the summer monsoon blows up from the Bay of Bengal. In October the wind changes to the west, and is then a cool wind, and the air is dry and clear.

Direction of Mountains.—Like all places on the Indo-Gangetic plain, Lahore owes its rain to the Himalayas, which bend the monsoon along their southern face. But it is too far up the valley, and too far from the mountains, to get much rain, the average being only 22 inches.

Calcutta on the Ganges Delta.

Latitude.—About 1° (69 miles) south of the Tropic of Cancer, and therefore in the Torrid Zone.

Height.—Unaffected by height: only 20 feet above sea-level.

Nearness to Sea.—Calcutta is 70 miles from the sea, and so enjoys a fairly

equable climate. It is never very hot, like Lahore, in the hot months, nor very cold during the cold months.

Prevailing Winds.—In the early part of the year a dry wind blows from the west, and in June the summer monsoon begins, bringing heavy rain. Out of a yearly total of 65 inches, nearly 50 fall in the monsoon months.

Direction of Mountains.—There are no mountains near Calcutta.

Nature of Soil.—The flat delta land makes Calcutta damp.

REGION OF TABLE-LANDS.

Nagpur in the Central Provinces.

Latitude.—About 21° N., and so within the Tropics.

Height.—1,025 feet, which is enough to keep the average temperature (79°) of the year fairly low for an inland place in the Tropics.

Nearness to Sea.—Nagpur, being 400 miles from either coast, is not influenced by the sea. Thus its temperature is higher than that of Calcutta in the hot weather, and lower in the cool months.

Prevailing Winds.—Every wind is a dry wind as it comes over the land, except in the summer monsoon, when the rain-laden clouds are carried in from the sea, and Nagpur receives 38 out of a yearly total of 44 inches.

Direction of Mountains.—Nagpur itself is in a plain, but the hilly country of the Central Provinces catches the monsoon clouds.

Bangalore in Mysore, the highest part of the Deccan.

Latitude.—About 13° N., and so nearly in the centre of the north Tropical Zone.

Height.—Nearly 3,000 feet. This alone gives the place a moderate climate. Though so far south, Bangalore's mean temperature for the year is only 73°, and even in April, the hottest month, the average is only 80°. The thermometer never touches 100°, but it sometimes falls to 50°, at night, in the cold weather.

Nearness to Sea.—Bangalore is nearly 200 miles inland.

Prevailing Winds.—Bangalore, being nearly in the centre of Southern India, receives both the summer and winter monsoon winds.

Direction of Mountains.—The Western Ghats keep off the full south-west monsoon rains, but allow the monsoon wind and clouds to pass over this part of the Deccan. Hence June, July, and August are very pleasant. The rainfall is far less than that of the Western Ghats in the summer monsoon, and far less than that of Madras in the winter monsoon. Average, 35 inches.

Nature of the Soil.—The soil is very dry and porous, hence Bangalore is one of the healthiest stations in India.

REGION OF COAST-STRIPS.

Bombay on the West Coast.

Latitude.—About 19° N., and well within the Tropics.

Height.—40 feet above sea-level.

Nearness to Sea.—Bombay lies on an island, and hence its climate is equable, the temperature neither rising very high nor falling very low. In May, the

hottest month, the thermometer scarcely ever goes above 90°, and in December, the coldest, it scarcely ever falls to 60°, even at night.

Prevailing Winds.—During June, July, August, and September Bombay is exposed to the full force of the monsoon, and during these months 70, out of a yearly total of 74, inches of rain fall. During the rest of the year the wind is from the west or north-west, and it is a dry wind, so that Bombay receives only about five per cent. of its rainfall outside of the summer monsoon.

Direction of Mountains.—The Western Ghats do two things for Bombay. (1.) In the summer monsoon they catch the moisture brought up from the Arabian Sea, and deposit it on the hills and coasts. (2.) In the early hot months they keep off the hot winds blowing from the Deccan.

Nature of the Soil.—Bombay island is more healthy than it used to be. The soil is naturally damp.

Madras on the East Coast.

Latitude.—About 13° N., therefore the town enjoys a tropical climate.

Height.—Only 20 feet above sea-level.

Nearness to Sea.—The position of Madras on the coast gives it an equable climate; it is never so hot in June as places inland on the Gangetic plain. Its average temperature for the year is 82°.

Prevailing Winds.—During May, June, and July hot winds blow from the land. The south-west monsoon, having crossed the heated Deccan, is at Madras a hot, dry blast. In October the winter monsoon begins to blow from the north-east, and during the last three months of the year Madras receives most of its average rainfall of 49 inches.

THE RIVERS OF INDIA.

Preliminary.—From the rainfall and the relief of the land of India it is easy to understand the river systems. Before, however, going into the details of the separate rivers of India, there are two general rules we should remember.

1. In India the rainfall takes place in certain fixed seasons (in most places during the summer monsoon months, June, July, August, and September), while but little rain falls during the rest of the year. Besides, in a hot country like India there is a great deal of evaporation. Therefore, during most of the year there is very little water in many of the rivers, and some of them are mere dried-up water-courses. The map shows the course of the rivers as they are only during the rains. If, however, a river comes from mountains covered with perpetual snow and ice, it will have water in it even in the hot weather, for then the snow and ice are melted by the sun.

2. The course of a river depends on the kind of country it flows through—whether it is flat and soft, or steep and rocky. Up in the mountains, or over a table-land, a river usually passes over a rocky bed from which it cannot escape; but on the plains it generally flows over sand and mud, through which it can quickly cut a new channel for itself. Thus some rivers in the plains of India are constantly changing their course. Conversely, if on the map we see a river has many channels or breaks up into a delta, we may be sure that the land there is very flat and soft.

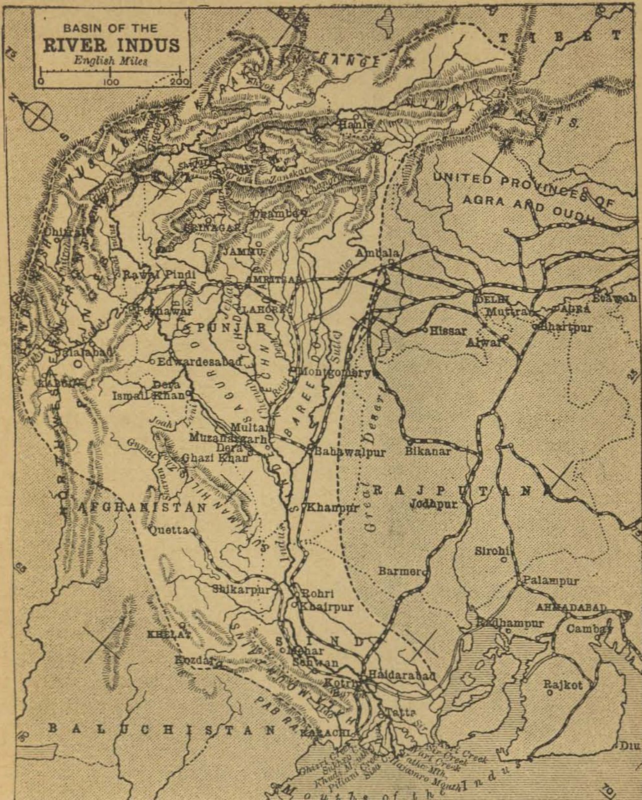
Three stages in the course of a river.—Most Indian rivers have three stages in their journey to the sea :—

1. *Mountain stage.*—Among the mountains a river is generally rapid, the slope being steep, and the water has great force, often cutting out a path for itself in the solid rock and sweeping off soil and gravel.

2. *Plain stage.*—The second stage begins where the river leaves the mountains and enters the plains. Here the slope is much less, and the speed of the current is much slower. The river, however, always keeps to the lowest level it can find, and gradually wears out a channel for itself; and as the channel deepens, the swamps on either side drain into it and become dried up.

3. *Delta stage.*—When a river reaches the strip of flat country near the coast, it is very nearly at sea-level. The mud it has brought down in the course of ages has raised its bed above the surrounding country, and consequently its waters spill over in separate streams, called distributaries, which enter the sea at different points of the coast. The triangular bit of country enclosed between the point where the river begins to split up and the mouths of its farthest separated distributaries is called a delta. Here, of course, the current is very slow, and the mud brought down is constantly being deposited, and makes the delta larger. The sea, also, often comes up the different mouths, and stops the current altogether. These three stages can be traced in most Indian rivers, but they are most marked in those of the Indo-Gangetic plain. Tributaries have, of course, no delta stage. Delta (Δ) is the name of the Greek letter *d*.

River Systems.—The river systems of India are: (1) the **Indus-Punjab System**; (2) the **Ganges-Brahmaputra System**; (3) the **Rivers of the Deccan.**



THE INDUS-PUNJAB SYSTEM.

The Indus and its tributaries.

Drainage.—This system drains the western third of the Himalayan Ranges, the Trans-Himalayan Ranges of the Kailas, the Karakorams, and the Hindu-Kush, and the Sulaimans.

The Indus.—The source of the Indus lies right beyond the Himalayas, in the lake region of Tibet, 18,000 feet above sea-level.

Course.—(1.) North-west up to the bend round Nanga Par-

bat (one-third of total). (2.) South-west from bend to sea (two-thirds of total). Total length nearly 1,800 miles.

Stages.—(1.) The *mountain stage* extends from its source, round the bend, and up to the point where it cuts through the Salt Range and enters the plains. During this stage of 800 miles it falls 17,000 feet, which means that its current here is very rapid. At a point near the Nanga Parbat bend it cuts through a gorge with cliffs, said to be 14,000 feet high, on either side.

(2.) The *plain stage* extends from the Salt Range to Haidarabad in Sind. Here the river flows slowly through a network of channels over a flat plain, keeping parallel to and about 30 miles east of the Sulaiman Mountains.

(3.) Below Haidarabad the *delta stage* begins. The bed of the Indus being raised above the surrounding country, its waters spill over into distributaries which enter the sea at widely separated points. Each side of the delta is about 130 miles in length. Unlike the Ganges delta, it is but little cultivated.

Tributaries. *Right bank.*—The *Shayok,* from the Karakoram glaciers; the *Gilgit,* from the southern slopes of the Hindu-Kush, entering near the bend; the *Kabul River,* entering near Attock, and bringing, with its tributaries the *Kunar* and *Swat,* the drainage of Eastern Afghanistan; the *Kuram* with its tributary the *Tochi,* and the *Gomal* with its feeder the *Zob,* both from the Sulaimans. For the remaining 600 miles of its course, after receiving the Gomal, the Indus has no feeder of any size on its right bank.

(1.) The Kabul, Kuram, Tochi, and Gomal run through valleys which form routes to Afghanistan, and the Gilgit valley leads to Northern Kashmir.

(2.) They are all mountain rivers fed by snows; they are therefore rapid.

Left bank.—The *Sutlej,* the largest of the tributaries, rises in the sacred Rakas Tal Lake, near the sources of the Indus; but instead of flowing north-west like that river, it strikes nearly due west across the Himalayas and down the Punjab plain, till its waters enter the Indus some 450 miles from its mouth. The Indus and Sutlej thus form a right-angled triangle, the Indus making the two sides round its bend, and the Sutlej the hypothenuse or base. Within this triangle lie the other four left-bank tributaries, the *Jehlam,* the *Chenab,* the *Ravi,* and the *Beas*—all from the Himalayas.

The two main tributaries are the Chenab and the Sutlej. The Chenab receives the Jehlam on its right bank, and, a little further on, the Ravi on the left; it then flows on into the Sutlej, which has early in its course received the Beas. The *Panjnad* is the name given to the water of these five rivers when they are all joined in one channel. Sixty miles below the junction it in turn joins the Indus. The country through which the left-bank tributaries flow is called the Punjab, which means five rivers (*Panj ab*).

Notes.—(i.) The right-bank tributaries of the Indus have no plain stage, as they enter it either among or close to the mountains. The left-bank tributaries, on the other hand, have a long course through the plains, and are therefore much more important both for navigation and irrigation.

(ii.) The Indus and its Punjab feeders flow out of the melting snows and well-watered valleys of the Himalayas into a dry and almost rainless plain. Hence, unlike most rivers, they become smaller as they go on, through their loss by evaporation and irrigation. East of the Sutlej, two rivers, the Ghaggar and the Saraswati, flow down from the Himalayas, but become dried up and lose themselves in the sandy desert of Rajputana. We can easily see from the map that the country west of Delhi and the Aravallis is very dry, since no rivers rise in that area.

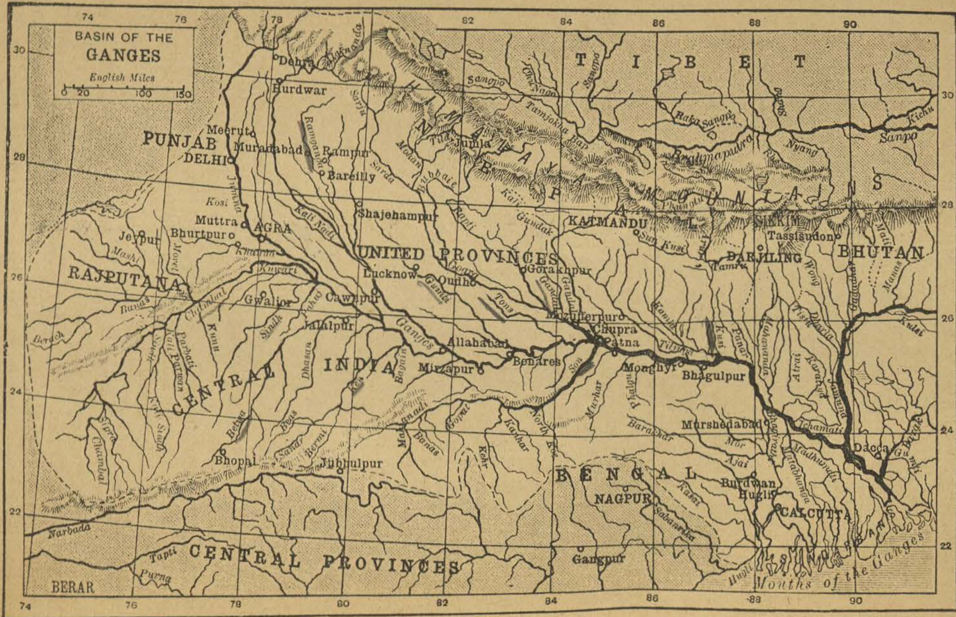
(iii.) The Indus and its Punjab tributaries flow out of mountain valleys into a flat plain ; hence their currents are much slower in the second part of their course. The Indus, when not in flood, wanders about among a network of channels and islands of mud.

(iv.) They flow out of a hilly and rocky country into a sandy alluvial plain. Hence, in their upper courses, their beds are fixed, but in their lower courses they easily cut out new channels for themselves, and constantly shift their banks. This is especially the case with the Indus in its delta. Here, east of the present bed of the river, hundreds of ancient channels have been found through which the river flowed in former days, and one of them, the Puran, used to carry the main stream into the Rann of Cutch, 70 miles east of its present mouth.

The Luni River, a salt stream from the Aravalli Hills, runs into the Rann of Cutch. It is generally dry, except after rain.

THE GANGES-BRAHMAPUTRA SYSTEM.

Drainage.—The drainage of this system is fixed by three ranges of mountains—the Himalayas on the north, the Vindhyas and their offshoots on the south, and the line of the Patkai and Lushai Ranges, with their offshoots the Jaintia, Khasi, and Garo Hills, on the east. The rainfall on these ranges and on the plains between them is very heavy, hence the system contains many large rivers. The system will be easily understood if we notice three points on the map : (1) Goalanda, the centre or lowest part of the plain where the Brahmaputra joins the Ganges ; (2) the Rajmahal Hills, the farthest spur of the Vindhya Ranges ; (3) the Garo Hills, which jut out from the general line of the Patkais. All the drainage of the system falls naturally towards Goalanda, the Ganges bending sharply round the Rajmahal Hills, and the Brahmaputra round the Garo Hills.


BASIN OF THE
GANGES
English Miles
0 20 100 150
T I B E T
HIMALAYA MOUNTAINS
PUNJAB
DELHI
Meerut
Muradabad
Rampur
Bareilly
Hurdwar
Dehra
Shajehampur
UNITED PROVINCES
Lucknow
Gorakhpur
KATMANDU
SIKKIM
Tassisudon
DARJILING
BHUTAN
Muttra
AGRA
Bhurtpur
Jeypur
RAJPUTANA
Gwalior
Cawnpur
Jalalpur
Allahabad
Benares
Mirzapur
Mozufferpur
Chupra
Patna
Monghyr
Bhagulpur
Murshedabad
Dacca
Burdwan
Hugli
CALCUTTA
NAGPUR
Gangpur
BENGAL
CENTRAL INDIA
Bhopal
Jubbulpur
CENTRAL PROVINCES
BERAR
Narbada
Tapti
Ganges
Brahmaputra
Sanpo
Mouths of the Ganges
74 76 78 80 82 84 86 88 90
30 28 26 24 22

THE GANGES.

Course.—For the first part of its course its direction is south, but after getting into the plain it turns more and more eastwards, keeping, however, to the south of the plain, till it rounds the Rajmahal Hills, and then runs through its delta to the sea.

Mountain stage: Source to Hardwar.—The Ganges, under the name of the Bhagirathi, rises in the Gangotri glacier of the Gharwal Range of the Himalayas, and is soon joined by the Alaknanda, which is the larger of the two, and, by the strict rules of geography, ought to be considered the source of the Ganges. Shortly after the junction the Ganges finishes its mountain stage by bursting through the outmost range of the Himalayas (the Siwaliks) near Hardwar.

Plain Stage: Hardwar to Goalanda.—Here the Ganges flows through one of the most fertile plains in the world, and receives almost all its tributaries. Soon after bending round the Rajmahal Hills it begins to give off distributaries. The chief of these is the Bhagirathi, flowing due south, which near its mouth is called the Hugli, on which Calcutta stands. The main stream (here called the Padda or Padma) continues south-eastwards to Goalanda, where the Brahmaputra joins it, and the deltas of the combined rivers meet.

Delta Stage.—The delta of the Ganges is the triangular piece of land lying between the Bhagirathi and the mouths of the Megna. It will be described along with the delta of the Brahmaputra.

Tributaries.—(1.) *Left bank:* These in order are the *Alaknanda*, *Ramganga*, *Gumti*, *Gogra* (with its feeders the Kali and Rapti), *Gandak*, and the *Kosi*—all, except the Gumti, from the Himalayas. (2.) *Right bank:* The *Jumna* (with its tributaries the Chambal, the Sind, the Betwa, and the Ken), the *Tons*, and the *Son*. The *Damodar* enters the right bank of the Bhagirathi, the delta-branch of the Ganges already mentioned.

The Himalaya Feeders.—These include all the left-bank tributaries, *minus* the Gumti, which rises in the plains, and *plus* the Jumna, which enters on the right bank. The Gogra, the Gandak, and the Kosi rise behind the Himalayas in Tibet, and force their way through the ranges. The Jumna, the Ganges itself, and the Ramganga have their source in the inner ranges of the Himalayas.

The *Jumna*, though not the largest tributary of the Ganges, is the most important. It rises in the Jamnotri glacier, not far from the source of the mother stream, and joins it at Allahabad. Though

it comes from the snows of the Himalayas itself, it is the channel which, by its feeders, brings into the Ganges a great part of the drainage of the Vindhyas.

The *Gogra* rises near the Rakas Tal Lake, and therefore close to the sources of the Sutlej, Indus, and Brahmaputra, and flows through the Nepal Himalayas under the name of the Kauriala.

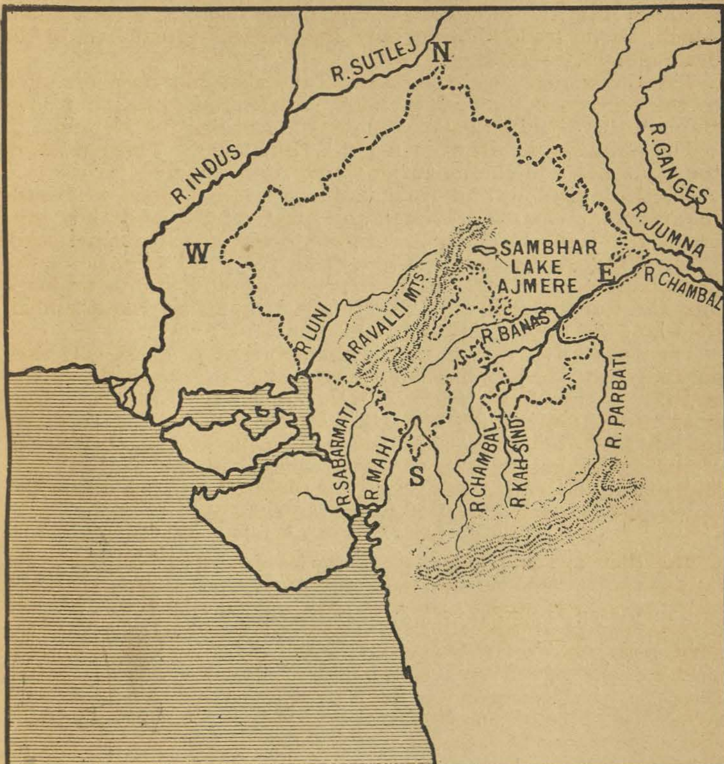
The *Gandak* also rises beyond the Himalayas. Three rivers of the same name in the mountains unite to form it.

The *Kosi* rises beyond Kanchanjanga in Tibet, flows westwards till it finds a channel through the great ranges, and then runs nearly due south into the Ganges just before the Rajmahal bend.

The Vindhya Feeders.—These drain the great triangle of the Central Indian plateau. More than half of the Vindhya drainage into the Ganges comes by the Jumna tributaries, the Chambal, the Sind, the Betwa, and the Ken.

The *Chambal* is by far the most important of these. It rises on the crest of the Vindhyas overlooking the Narbada valley, and drains the Malwa plateau by a number of tributaries. Besides these Jumna tributaries, the Ganges receives the Tons and the Son from the south. The *Son* rises in the Amarkantak Range of the Vindhyas, quite close to the sources of the Narbada and Mahanadi, and enters the Ganges between the points where the Gogra and Gandak join it from the other bank.

The Himalaya and Vindhya Tributaries compared.—To look at the map, one would think that the Vindhya tributaries were nearly, if not quite, as important to the Ganges as those that come from the Himalayas. But here the map deceives us, for:—(1.) The Vindhya tributaries are not snow-fed. They are therefore dry or nearly dry in the early hot season, just when the snow is melting on the Himalayas and filling the rivers which rise in them. (2.) The Himalayas have a much heavier rainfall than the Vindhyas; therefore the average flow of the Himalayan rivers is much greater. (3.) Since the Ganges flows not in the middle of the Gangetic plain, but well in the south of it, the Himalayan tributaries have a long second stage over the flat plain, while the Vindhya tributaries have only a short one. Hence, on the whole, the Vindhyan tributaries are more rapid, and, consequently, of much less use for navigation. Besides, as we have seen, they are nearly dry in certain seasons. (4.) The Himalayan tributaries in the plains flow through soft loam and mud, while those from the Vindhyas rush through rocky country and over stony beds. Therefore, when rain comes, the Himalayan feeders are only gradually filled, as much of the water soaks through the soil; but in the case of the Vindhyan rivers the water runs rapidly over the rocky surface and quickly fills them. The Vindhyan feeders are therefore famous for heavy and rapid floods. Thus the Chambal, which is usually a small river, brings down, in the rains, as much water as the great Jumna itself. Again, the Son, after heavy storms, has to carry off the rainfall of 21,000 square miles in its channel, and then it suddenly swells to a mighty river a thousand times its size in the dry weather. (5.) For these reasons the Vindhyan tributaries are much less useful for



THE VINDHYAN FEEDERS OF THE JUMNA.

irrigation than those from the Himalayas. It is difficult to make canals in rocky soil and feed them from rivers which quickly run dry. There is no canal irrigation on the Vindhyan rivers except in small tracts on the Betwa and Son after they have entered the Ganges plain. On the other hand, nearly the whole of the Doab between the Ganges and Jumna is fertilized by canals.

THE BRAHMAPUTRA.

Course.—Eastwards through Tibet to the bend round the eastern end of the Himalayas; then south-westwards down the Assam valley to bend at Garo Hills; then due south through Eastern Bengal to the sea.

Stages—(1.) *Mountain stage: from source to Himalayan bend.*—From its source on the slopes of the Kailas Mountains near the Manasarowar Lakes, the Brahmaputra (here called by its Tibetan name, the Tsanpu) flows eastwards along a trough in the plateau for nearly 900 miles, or about half its whole length. Then, after a big bend to the north, under the name of the Dihang, it turns sharp round the eastern end of the Himalayas and enters India.

(2.) *Plain stage: from Himalayan bend to Goalanda.*—The second stage takes it for 450 miles nearly due westwards down the Assam valley, sharply round the end of the Garo Hills, and 150 miles dead south to Goalanda, where it joins the Ganges.

(3.) *Delta stage.*—This will be dealt with later along with the deltas of the Ganges and Megna.

Tributaries.—In its first stage little is yet known about the Brahmaputra, and its course for some distance is only guessed on the map.* At the beginning of the plain stage, just after turning the Himalayas, it is joined near the frontier town of Sadiya by several mountain rivers—the *Dibang* from the north, the *Lohit* (sometimes called the Brahmaputra) from the east, and the *Dihing* from the south-east. The Assam valley receives much rain, and here the Brahmaputra is helped by many feeders, but, owing to the narrowness of the valley, they are not long. The *Subansiri* and the *Manas* from the Himalayas are the chief. After the Garo corner the *Teesta* joins it from the slopes of Kanchanjanga.

Note.—In its southward course to Goalanda the Brahmaputra is known as the Jamuna. Little more than a hundred years ago the river, instead of flowing due south after the bend as it does now, turned south-eastwards close to the Garo Hills, and this bed, which is nearly dry in the hot season, still keeps the name of Brahmaputra. In the wet season its flood-waters pour into the Megna.

The Delta of the Ganges and Brahmaputra.—The third or delta stages of these rivers are joined together. After their meeting at Goalanda, the combined rivers flow south-eastwards, and receive the drainage of the southern slopes of the Garo, Khasi, and Jaintia Hills on the north, and of the Lushai Hills on the east. This drainage, which is brought down by the Surma and Kusiyara distributaries of the Barak, flows down the great Cachar and Sylhet valleys. The waters of the Padma (Ganges), Jamuna, Brahmaputra, and Surma then form the estuary of the Megna, which is the great opening

* During the recent expedition to Tibet (1904) the upper half of the Tsanpu from Shigatse (due north of Kanchanjanga) to its source, was mapped out.

of the delta on the east, as the Hugli is on the west. Thus we really have three deltas.

1. *The delta of the Ganges*, which begins where the Bhagirathi breaks off southwards from the main channel, about half-way between the Rajmahal bend and Goalanda.

2. *The delta of the Brahmaputra*, beginning a little below the Garo bend where the new bed of the Jamuna and the old bed of the Brahmaputra split off from each other.

3. *The Megna delta*, which begins high up the Sylhet valley where the Barak splits up into the Surma and Kusiyara.

The great united delta has a sea-face of over 200 miles: it is intersected by fourteen large estuaries and hundreds of small ones, which break it up into a labyrinth of flat mud islands, formed by the silt brought down by the Ganges. The sea, especially during the summer monsoon, rushes up these estuaries and checks the current of the river, which in consequence deposits its burden of mud. This great stretch of flat mud islands, covered with dwarf palms and brush-wood, the haunt of tigers and crocodiles, is called the *Sundarbans*. The heat and dampness breed a kind of fever, which at certain seasons makes the whole region very unhealthy.

RIVERS OF THE DECCAN TABLE-LAND.

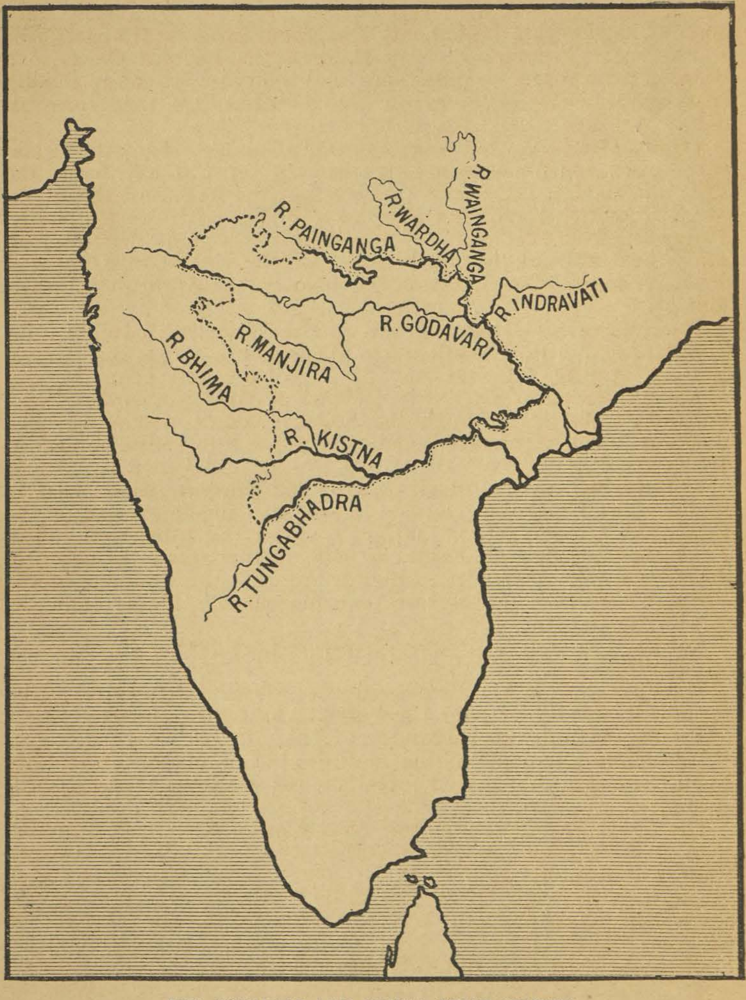
1. Flowing into the Bay of Bengal.

Drainage.—The area drained by these rivers is bounded *on the north* by the Satpuras, Vindhyas, and Chutia Nagpur highlands; *on the west* by the Western Ghats.

Course.—The general course of these rivers is: (1) a long, fairly straight run from their sources in one or other of these ranges down the eastward slope of the table-land; (2) a break through the Eastern Ghats; (3) a short run across the coast-strip to the sea, ending usually in a delta.

The rivers in order from north to south are the *Mahanadi, Godavari, Kistna, North Pennar, Palar, South Pennar, Kavari, Vaigai, Tambraparni.*

The *Mahanadi* rises in the high country south of the Amarkantak Range of the Vindhyas, drains some of the Chutia Nagpur highlands, and flows eastward till it cuts through the Eastern Ghats in a great gorge, and reaches the coast-strip, where it branches off into a delta, some 200 miles south of the Hugli. To the north, the *Baiturni* and *Brahmini* from the Chutia Nagpur highlands join it at its delta.



THE GODAVARI AND KISTNA RIVER-SYSTEMS.

The *Godavari*, the largest river of the Deccan, rises near Nasik (only 50 miles from the Arabian Sea) in the Western Ghats. For the first two-thirds of its course it flows nearly due east right

across the Deccan table-land, and then turns south-eastwards to the sea. It forces its way through the Eastern Ghats in a deep, narrow gorge, 20 miles long, and soon after it enters the flat coast-strip, where it gives off the distributaries that form its delta.

Tributaries.—At the point mentioned above where the Godavari turns south-eastwards, it receives on the left bank the *Pranhita*, itself a large river, made up of the waters of the *Wainganga* from the north, the *Wardha* from the north-west, and the *Painganga* from the west. A little below this point the *Indravati* comes into it from the north-east. On the right bank, half-way down its course, the Godavari is joined by the *Manjira* from the south.

The *Kistna* (or Krishna) rises in the Western Ghats, not far from the sea. Its general course is eastwards across the Deccan plateau, but for the first part of its course, and near the end where it crosses the coast-strip, it flows nearly southwards. Near Bezwada it breaks through the Eastern Ghats in a gorge, and then for the last hundred miles to the sea it splits up into a delta.

Tributaries.—The *Bhima* rises in the Western Ghats east of Bombay, and flows south-east to fall into the left bank of the Kistna at a point about half-way across the table-land. The *Tungabhadra* joins the Kistna a little farther down, bringing in the *Tunga* and *Bhadra* and other tributaries, the drainage of the northern slopes of the Mysore plateau, which is higher than the rest of the Deccan.

Note.—The deltas of the Godavari and Kistna touch each other.

The *North Pennar* rises in Mysore, flows northwards down the northward slope, and then strikes east into the bay about 100 miles south of the Kistna.

The *Palar* also rises in the high ground of Mysore, but flows down the eastern slope, and enters the sea less than 50 miles south of Madras.

The *South Pennar* is a shorter river flowing eastwards from the edge of the same table-land into the bay about half-way between Madras and Point Calimere.

The *Kavari* rises in Coorg among the Western Ghats, flows south-eastwards across Mysore, leaves it when it breaks through the Eastern Ghats (here far from the sea) at the Sivasamudram Falls, and then strikes due east across the plain past Trichinopoly, where its delta, formed by the Coleroon or northern, and the Kavari or southern branch, begins.

Tributaries.—Several small feeders join it in Mysore, and in the plain it is joined by the *Bhawani* from the southern slopes of the Nilgiri Hills.

Note—*Kavari Islands.*—In its course the Kavari forms three

islands famous for their sanctity—*Seringapatam*, near Mysore town; *Sivasamudram*, at the falls on the Mysore frontier; and *Srirangam*, near Trichinopoly. The first is also famous as Tippu's last stronghold in the Mysore wars.

The *Vaigai* rises in the eastern slopes of the Travancore Hills, flows past Madura town, and falls into Palk's Strait near Rameswaram.

The *Tambraparni* is a small river flowing past Tinnevelly; it is a great source of irrigation.

General features of the South-eastern Rivers.—The Mahanadi, Godavari, Kistna, and Kavari flow:—(1.) Over the rocky table-land of the Deccan. Their valleys are therefore narrow and deep, being hollows worn away by the current flowing over the hard surface. Hence, in their upper courses they are little used for irrigation. Like the Vindhyan feeders of the Ganges, they rise very rapidly when in flood. The flooded Mahanadi pours as much water into the sea as the flooded Ganges. (2.) Through a dry country with a light rainfall. Hence they are usually shallow, and quickly dry up. (3.) Over rocky beds and through gorges. Hence they are of little use for navigation. Even on the Godavari there is little boat traffic. (4.) Their deltas on the coast-strip are, however, fully irrigated. Tanjore, "the garden of Southern India," is the delta of the Kavari; the deltas of the Godavari, Kistna, and Mahanadi are also famous for their fertility. (5.) The Godavari, Kistna, and Kavari, having their sources in the Western Ghats, where the summer monsoon is heavy, are often in flood when the country through which they flow has had no rain, and when rivers like the Pennars and the Palar, rising in the parched Deccan, are dried up. Hence, also, in their deltas rice cultivation may be going on though no rain has fallen near the coast for months.

The Periyar Project.—The Madras government have contrived a wonderful irrigation work which feeds the Vaigai. They have built an anicut across a small river (the Periyar) flowing down the west side of the Western Ghats, and, by cutting a tunnel through these hills, have made the water run eastwards to irrigate a large tract of country and then flow into the Vaigai. Water which ran useless into the Arabian Sea is thus led across the peninsula into the Bay of Bengal.

2. **Flowing into the Arabian Sea.** The *Narbada*, *Tapti*, *Mahi*, *Subarmati*.

Since the Western Ghats run close to the coast, there is no room for any large river on their seaward side, though the rainfall is heavy. Among the many short streams, the *Shiravati* is the best known, on account of the *Garsoppa Falls* on it, the chief of which is nearly 900 feet high. But north of the end of the Western Ghats two large rivers flow into the Gulf of Cambay.

The *Narbada*, rising in the Amarkantak Range of the Vindhyas, flows westwards to the sea. Being confined in the narrow valley between the Vindhyas on the north and the Satpuras on the south, it has no room to wander about, and its course is very straight; for the same reason it does not receive any large tributaries.

The Tapti.—Some 50 miles south of the Narbada, and separated from it by the Satpuras, is the Tapti. It also has a very straight course westwards, and near the end of its journey skirts the northern spurs of the Ghats.

General Features.—The courses of the Narbada and Tapti are very similar. They come from rocky uplands, with falls and rapids here and there, then flow through narrow but fertile valleys, and at last over alluvial plains near the coast. They have no deltas, and are therefore navigable by small ships from the sea for about 100 miles up their course.

The *Subarmati* and *Mahi* drain the western end of the Malwa plateau between the Vindhyas and the Aravallis, and flow into the northern end of the Gulf of Cambay.

NATURAL PRODUCTIONS.

From the climate and rainfall of India we can understand what are the chief productions of its fields and forests. It is a hot country, and produces almost all the crops and trees of the Torrid Zone, as well as, in its northern and its elevated districts, some of those of the Temperate Zone. In India there is always plenty of heat and sunshine, and the fertility of a district depends on its soil and rainfall. We can divide the productions into—(1) those which are used for food; (2) those used for other purposes.

CROPS USED FOR FOOD.

1. **Rice.**—This is the chief crop of India, but it is not the chief food. The people eat more of millets, pulses, wheat, and other food grains than they do of rice. Only about one-third of the people are rice-eaters. Rice requires heat and a great deal of water for its cultivation, hence it is chiefly grown

(1) in the great flat, well-watered plains of the Bengals, where there are usually two crops, in the Surma and Brahmaputra valleys, and in the Mahanadi delta; (2) in Burma, which, as we shall see, receives a heavy monsoon, and has fine rice lands in the Irawadi valley and delta; (3) in the Madras Presidency, which has the finely-watered deltas of the Godavari, Kistna, and Kavari on the east coast, and a very heavy rainfall on the Malabar coast seaward of the Western Ghats; (4) in the United Provinces, which are watered by the Upper Ganges tributaries and by many canals.

The Punjab and Sind are too dry to grow much rice, except in irrigated tracts. The Bengals produce more than half the rice grown in India and Burma together.

2. **Millets, Pulses, and other Food Grains.**—These make up the chief food of the people of India. The millets (of which there are many varieties) are *jowar* or *cholam*, *bajra* or *kambu*, and *ragi*. *Maize*, or Indian corn, is largely cultivated. The pulses, characteristic plants of all dry countries, are also many in number, but the chief are *gram* and *dal*. These millets and pulses are grown nearly all over India, and do not require much rain; but they are not so valuable crops as rice and wheat, therefore they are not grown where rice or wheat can grow well. Thus rice countries like Burma and Assam only grow them to a small extent, and the Bengals only grow them where rice does not flourish.

3. **Wheat.**—Wheat can sprout under snow, but cannot stand great heat and dampness. It is very little grown on the hot, flat plains, and therefore but little in the Bengals, and not south of the Godavari. It thrives in the cold season in the United Provinces and the Punjab, and in the better soils of the Central Provinces. The elevated tracts of the Shan States, in the east of Burma, promise to become a wheat-growing area.

4. **Barley.**—Barley likes heat even less than wheat. It is not much grown in India, and most of it comes from the United Provinces and the high grounds of the Bengals, where there is a good cold weather season.

5. **Vegetables.**—These are grown all over India in gardens wherever water can be had from wells.

6. **Fruits.**—India has many kinds of fruit. Mangoes, plantains or bananas, pine-apples, guavas, pomegranates, jack-fruits, custard-apples, papaws, figs, melons, oranges and

limes, as well as cocoa-nuts, are the most common; but as they have not been so carefully cultivated as the fruits of Europe, they are not so luscious. In Kashmir, on account of its more temperate climate, many kinds of European fruit trees thrive.

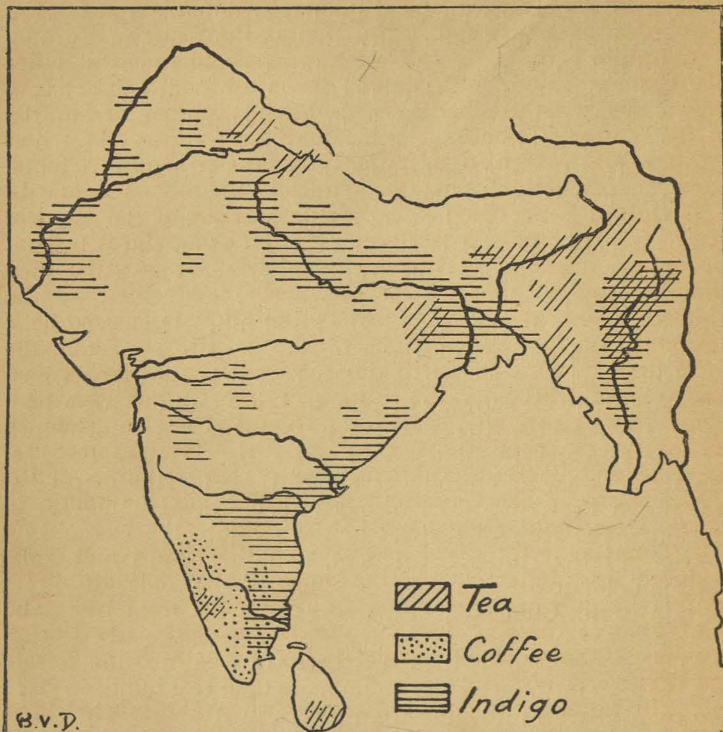
7. **Sugar.**—This is made from sugar-cane and from the bastard date palm. Sugar-cane requires good soil and irrigation. It is therefore grown chiefly in the United Provinces, the Bengals, the Punjab, and Madras.

8. **Spices.**—The natives of India use spices largely for curries. Turmeric and chillies are grown almost everywhere. Cardamoms and pepper (the fruit of a creeper) are cultivated in the Malabar and Travancore coasts.

9. **Tea.**—Tea is the dried leaf of a shrub. It is very little drunk by the natives of India, and is largely exported. It flourishes in high ground, and the best crops are got where there are frequent showers of rain to bring out the fresh leaf-buds, from which the finest tea is made. Assam, which receives rain nearly all the year round, is therefore the best climate for tea, and produces about three-fourths of all the tea grown in India. Tea also grows on the Himalayas, in Darjiling, the Kangra district of the Punjab, the Dehra Dun districts of the United Provinces, and the Nilgiri and Palni Hills in Madras. Thirty years ago the people of Great Britain drank China tea; they now drink tea from India and Ceylon.

10. **Coffee.**—This is the dried berry of a shrub, and is said to have been introduced into India more than two hundred years ago by a pilgrim returning from Mecca in Arabia. The shrub grows best on hills about 3,000 feet above sea-level, and in a damp, warm climate. It cannot stand the full force of the monsoon rains; it is therefore grown on the side of hills sloping away from the monsoon—that is, on the landward side of the Western Ghats in Coorg, Mysore, Travancore, Cochin, and the Nilgiris. Very little coffee is drunk in India.

11. **Oil Seeds.**—There are six chief kinds of these seeds: linseed, rape, cotton seed, sesamum (gingelly), castor seed, and ground-nuts. They are grown generally over the whole of India, and in very fertile parts are sown as a second crop. The oil squeezed out of them is used for food, oil-baths, and for lamps. A great quantity is exported to Europe as food for cattle, and for making sweetmeats and soap. The refined oil of the castor seed is used as medicine.



CROPS USED FOR OTHER PURPOSES.

1. **Cotton** is the soft fibre in the husk that covers the seed of the cotton plant, which prefers a warm climate, and flourishes best in the soft loam called black cotton soil or *regar*. This soil is chiefly found in the Gujarat and Kathiawar plains of Bombay, in the valleys of the Central Provinces, in Berar, in the "ceded districts," and in the Coimbatore and Tinnevelly districts of Madras.

2. **Jute** is the fibre of a mallow which grows in damp soil. It takes a great deal of nourishment out of the ground, and so can only be grown where the soil is constantly renewed by alluvial mud. Hence it is chiefly grown in the lower

valleys of the Ganges and Brahmaputra. A very little is also grown in Assam and in the Madras Presidency.

3. **Indigo** is the sediment which is deposited from the indigo plant when steeped and beaten. It is used as a dye. It is grown chiefly in the Bihar division of Bengal proper, and a little in the United Provinces, Madras, and the Punjab. It is now grown to a less extent than formerly, as the Germans have found out a cheaper method of making artificial indigo out of chemicals.

4. **Opium** is the dried juice which oozes out of the capsules of the poppy plant. It is a very powerful drug, and is poisonous unless taken in very small quantities. It is eaten as a stimulant by people in India, is smoked and eaten by the Chinese, drunk as a kind of tea by the Sikhs, and used as a medicine by the rest of the world. In British India the Government keeps the cultivation of the poppy under its own control. It is grown (1) in Bihar; (2) the United Provinces round Patna, Benares, and Ghazipur; (3) it is also grown in the native states of the Central Provinces, Rajputana, and the Gaekwar of Baroda's dominions. This opium is called *Malwa opium.* The Government of India sells the opium to Calcutta merchants, who export it to China.

5. **Tobacco** is the dried leaf of a plant which was first introduced into India by the Portuguese three hundred years ago. It is grown in almost every district for local use. The chief tobacco-growing districts are the Bengals, the United Provinces, Madras (chiefly in the *lankas* or islands of the Kistna and Godavari), and Burma.

6. **Cinchona** is the prepared bark of a tree, introduced from Peru in 1860, which grows on hills, chiefly in the Nilgiris, Mysore, Travancore, and at Darjiling. From the bark is prepared quinine, the great preventive of fever.

7. **Silk** is a kind of gossamer thread spun by a grub called the silkworm. The silkworm thrives best on the leaf of the mulberry shrub, and it is only where this shrub grows well that silkworms are kept. This is chiefly in the Bengals. There are also "*wild silks*" obtained from other worms grown on jungle trees. These silks are called *tasar* or *tusser* silk. Assam is famous for it, and there every one dresses in silk.

8. **Lac** is a kind of yellow gum secreted on the branches of trees by an insect. From it are obtained (1) a dye; (2) a kind of wax called shellac, which is used as varnish. Lac is gathered by wild tribes in Chutia Nagpur and Assam.

FORESTS.

The chief forest districts are in the rainy districts of the Western Ghats, the Himalayas, Assam, and the hills of Burma. The Sundarbans of the Ganges delta are covered with jungle, which supplies Calcutta with firewood. In most parts of India, except the dry area, if land is left to itself it quickly gets covered with a scrubby jungle.

India, on account of the variety of its climate, produces many kinds of trees.

The **Teak.** This is " the king of Indian forest trees," and flourishes best where there is a heavy rainfall. It is therefore found in the Western Ghats, Assam, and Burma. The Himalayas are too cold for it. It is a splendid timber tree, very hard, and the white ant leaves it alone. It is floated down the rivers to the coast, but it will not float in water till it has been dead two years.

The **Sal** is next to the teak as a timber tree, but can flourish with less rain. It grows chiefly in the Eastern Himalayas, on the hills of Central India, and on the Western Ghats.

The **Deodar,** a kind of cedar, also a good timber tree, grows in the Himalayas.

Pines, which also give good timber, prefer a temperate climate, and are therefore found on the Himalayas. They have also been planted on the Nilgiris.

Besides these timber trees, there are many others useful in other ways. The **Sandal-wood** tree grows in Mysore, the **Ebony** on the Western Ghats, and the most useful **Bamboo** all over the peninsula and Burma.

Palms. India is famous for palms. The *cocoa-nut* prefers a sandy soil near the sea, and a warm climate with good rainfall. It is therefore found on the strip of coast all round the south of the peninsula. It yields a nut, the kernel of which, when dried, is called *copra*, from which oil is squeezed. The tree also yields fibre (*coir*) for ropes and matting. Its leaves form the roofs of houses. The palmyra and bastard date yield sugar and toddy: they grow all over the peninsula. The true date, yielding the date fruit, loves a dry climate, and therefore flourishes in Sind. The areca palm, which yields " betel-nut," is chiefly grown in the deltas of the Bengals and the west coast of Bombay.

ANIMALS.

In India and Burma there are many kinds of animals belonging to the tropical and subtropical regions of the earth. The larger wild animals abound in those parts where they are least disturbed by man—namely, in the valleys of the Himalayas (especially in the Tarai) extending from Kashmir to the Brahmaputra valley, in Upper Burma, on the Eastern and Western Ghats, and in the jungles of the Central Provinces and Central India.

Wild Animals.—(1.) *Flesh-eaters.* The maneless *lion* of India, now nearly extinct, is found in Gujarat; *tigers* are found in hilly and jungly parts all over India, where they are undisturbed and can find food; *leopards* or *panthers* are common in the hills and plains, and a kind of leopard called the *cheetah* is taught, in some places, to hunt; *hyænas*, *foxes*, *wolves*, *jackals*, and *wild cats* are to be found everywhere; the *wild dog* lives on the Nilgiri Hills.

(2.) *Non-flesh-eaters.* The *elephant* is found in herds in the lower Himalayan valleys, in the Brahmaputra valley, in Upper Burma, and in the Travancore and Mysore ranges of the Western Ghats. *Bison* and *wild buffaloes* are hunted on the hills of Southern India, *bears* on the hills nearly everywhere, *deer* and *antelopes* on the plains. The *ibex*, a rare kind of goat, is found on the tops of the Nilgiris and the Western Ghats, and on the mountains of Kashmir; *yaks* are peculiar to the higher Himalayas; *wild asses* are found in Cutch and Sind; the *rhinoceros* frequents the swamps of Assam, Burma, and Northern Bengal; *monkeys*, *porcupines*, *hares*, *wild hogs* are to be seen in nearly every district.

Domestic Animals.—*Cattle* of different breeds, *goats*, *sheep*, *horses*, *ponies*, *asses*, and *mules* are kept, but for agricultural purposes the *bullock* and the *tame buffalo* are chiefly used. The Himalayan *yak* has been broken to carry goods over the mountains. The desert districts of Rajputana and Sind are famous for their breed of *camels*, and Kathiawar for its peculiar breed of horses; but India imports its best horseflesh from Arabia and Australia. The *Burman pony* is well known for its endurance. Government breeds *mules* for military transport purposes. In Burma the *elephant* is taught to drag and pile huge teak logs.

Birds.—The chief birds of prey are the common *vultures*,

kites, and *hawks*. Game-birds are *wild ducks*, *florican* or bustard of India, *wild geese*, *partridges*, *quails*, *pigeons*, the *sand-grouse* of Rajputana, and the *jungle fowl* (from which the domestic fowl is said to have been bred). In the cold season millions of *snipe* migrate to the paddy fields of India and Burma. Of other birds, *parrots*, *peacocks*, *mainas*, *cranes*, *crows*, and a multitude of smaller kinds are very common. Birds in India, as in most hot countries, are more famous for their plumage than for their song.

Reptiles.—In India and Burma many kinds of reptiles abound. Of *crocodiles* there are two kinds—the common *maggar* or blunt-snouted, and the *gavial* or long-snouted (found in the rivers of Northern India). *Cobras*, *Russell's vipers*, *karaits*, and the *hamadryads* of the hills are the most deadly kinds of snakes; the huge *python* is not poisonous, but kills its victim by crushing it in its enormous coils.

Fish of various kinds abound in the tanks and rivers along the sea-coast.

EFFECT OF CLIMATE AND PHYSICAL FEATURES UPON THE PEOPLE.

We have now to consider how the peoples of India have been and are affected by the physical features of the country—the mountains, rivers, sea, climate, and rainfall. We begin with the effects of rainfall on population.

INFLUENCE OF RAINFALL.

Density and Distribution of Population.—The population in India, as in every country, is thickest where the soil is most fertile, and fertility in India depends on rainfall. Hence, as a rule, *the density of the population varies with the amount of the rainfall.* But there are some other things to be taken into account.

Even though the rainfall is heavy, the population may not be dense (1) if the rainfall is uncertain; (2) if the country is mountainous, and therefore little productive; (3) if it is unhealthy; (4) if it is open to the attacks of enemies.

On the other hand, the population may be dense, even though the rainfall is only moderate, (1) if there is a good system of irrigation to make up for the light rainfall; (2) if the rainfall, though light, is certain.

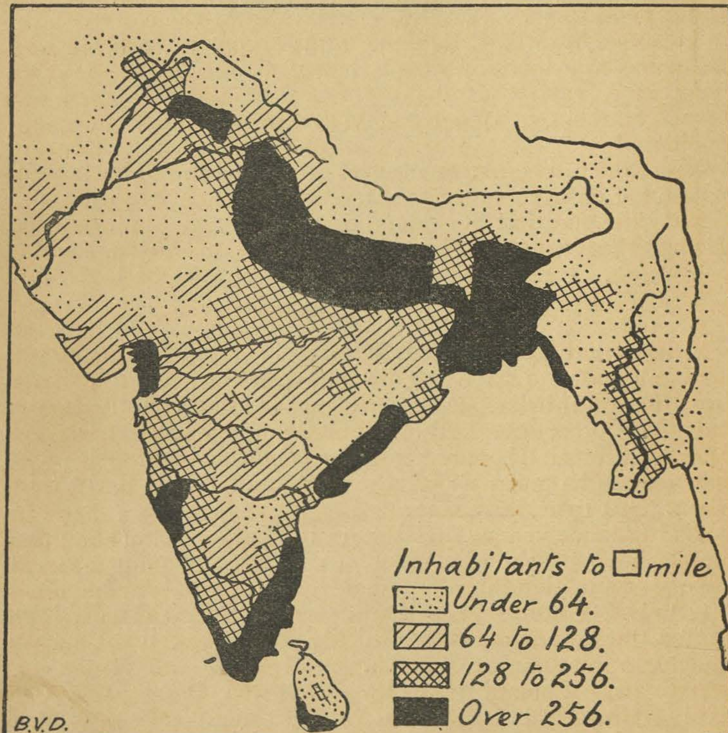
Taking now our four divisions of rainfall (see pp. 35, 36), we can examine how they compare with each other in regard to density of population.

1. **Indo-Gangetic Plain from the Surma to the Jehlam.** This well-watered area is also thickly populated; it is the most thickly populated part of India.

But the Brahmaputra valley is an exception: it is very thinly populated because (1) it contains many mountains and jungles; (2) the lower hills are unhealthy; (3) a hundred years ago it was overrun by the Burmese, who left it almost without inhabitants.

The southern part of the upper Indo-Gangetic Plain (from Allahabad to the Jehlam) gets little rain, but the population is dense on account of the number of canals and other irrigation channels, which make up for the light rainfall.

2. **Coast-strips.**—(1.) West coast from the Tapti to Cape Comorin. The heavy rainfall never fails; three crops of rice are reaped, and so the population is dense. (2.) East coast from the Ganges delta to Cape Comorin. Although this strip only gets half the rainfall of the west coast, the population is fairly dense because (*a*) little of the country is



taken up by hills; (*b*) it contains the three finely irrigated deltas of the Godavari, Kistna, and Kavari, and thousands of tanks and wells.

3. **The Table-land Region of the Deccan and Central India.**—The whole of this region is thinly populated. The north-east corner, including the Central Provinces and Chutia

Nagpur, though it receives a large and certain rainfall, is covered with hilly, poorly cultivated jungles, and, in consequence, its population is thin.

4. **Dry Area.**—This is the most thinly populated part of India. Baluchistan, for example, has only eleven persons to the square mile, and the rest of the area would be as thinly peopled were it not for the patches of land irrigated from the Indus flood canals.

Thus, on the whole, *the order of the regions in regard to rainfall is the same as their order in regard to population, the exceptions being* (1) the Brahmaputra valley and the north-east corner of the Deccan, which, though well watered, are thinly populated; (2) the southern part of the upper Indo-Gangetic valley, which, though it receives a small rainfall, is densely populated on account of its splendid system of irrigation.

We shall see that Burma is another exception to the rule. Though a very wet country, its population is very sparse.

INFLUENCE OF MOUNTAINS.

1. **As Barriers.**—(1.) The Himalayas have been called "the human equator of the earth." They have always cut off India from the rest of Asia. Even at the present day there is scarcely any trade or communication of any kind between India and Tibet or China. The number of the people who are tinged with Tibetan or Mongolian blood is very small. In the north-west, where the barrier of mountains is pierced by passes, many invaders have descended into the fertile Ganges plains, but they luckily have mostly been tribes of a higher race and more advanced civilization than the inhabitants whom they conquered.

(2.) The Vindhyas, stretching across the peninsula, prevented the Aryans invading the south of India in great masses. They kept to the flat Indo-Gangetic plains, and rather converted and colonized than conquered the Deccan and Carnatic. Hence the Dravidians of the south have kept their blood and languages nearly pure.

(3.) The Western Ghats have had the effect of cutting the peoples of the west coast-strip off from the rest of India. The Moghals, who overran most of the rest of India, never occupied the Travancore coast-strip. The customs of the Malabar coast have thus always been quite different from those of the rest of India.

2. **As a Refuge.**—The mountains and hills of India have been the refuge-ground of wild aboriginal tribes, who fled to them before the advance of the Aryans. Thus the hilly country of the Central Provinces of Chutia Nagpur is the home of the Gonds; the Todas live in the Nilgiris. The Himalayas, the Ghats, and the hill ranges of Burma contain many half-civilized tribes which have not yet become Hindus.

3. **As the Home of Hardy Mountaineers.**—The mountains of India have also bred many hardy and warlike races. In the hilly country west of the Indus live the different Pathan tribes who have so often invaded India, and who are now being recruited and trained as militia by the British Government for the defence of the North-West Frontier. The sturdy Gurkha mountaineers of Nepal are another example.

INFLUENCE OF RIVERS.

Rivers, if large enough to be navigable, afford an easy means of communication between one part of the country and another. As we have seen, the Ganges, Brahmaputra, and their tributaries are the most important navigable streams, being full of water nearly all the year round. This is one of the reasons why the Gangetic valley has, since the earliest times, been the centre of trade and civilization. When the rest of India was pathless forest, the Bengals were intersected in all directions by waterways.

It is a disadvantage to India that her rivers usually enter the sea in shallow, sandy delta-mouths, instead of broad and deep estuaries, which, in other countries, offer a pathway for ships and commerce far into the interior. The Hugli, the only considerable estuary in India, has to be constantly dredged to prevent it silting up.

INFLUENCE OF THE SEA AND SEA-COASTS.

The peninsula of India projects far into the Indian Ocean, and is separated from the rest of the world by thousands of miles of open sea. This kept India for ages isolated from the rest of the world, until ocean-going ships were constructed. Again, in India, with the exception of Palk's Strait in the extreme south, there are no narrow seas which in other countries have encouraged navigation, and bred a race of hardy

and adventurous seamen like the ancient Greeks, the Danes, and the English. Besides, India has always suffered from the absence of natural harbours capable of sheltering ships in the monsoons. These reasons partly explain why the people of India have always been stay-at-homes, with customs unlike those of other countries.

INFLUENCE OF THE CLIMATE.

In India, as in most tropical countries, the fruits of the earth are plentiful, and not much exertion is needed to grow enough for food. At the same time little is required in the way of clothes or houses as shelter against the weather. Hence the increase of population in fertile parts is very rapid. Till quite recent times emigration from India was unknown. The people have lived a life of contentment, cultivating the soil, and supplying from it their few needs. They are hard-working because, on account of the dense population, the very most has to be made out of each portion of the soil to give a livelihood to all. In a hot country where Nature with a little help provides plenty of food to the cultivator, and little shelter is necessary, there is not the spur to exertion which is found in a temperate or cold climate where Nature is more sparing of her gifts. In particular, agriculture is the kind of work which least of all leads to invention and enterprise. To-day, if we go into an Indian ryot's house or fields, we find him using just the same implements, and in the same way, as his ancestors did hundreds of years ago. Thus the warm climate and fertile soil of India, which afford an easy livelihood, partly explain why it has not advanced so fast as other countries. Lastly, the great mass of the peoples of India are dependent every season on the monsoon rains. If these fail, no exertion on their part can prevent the crops from withering and themselves from perishing of hunger and famine. This utter dependence on Nature is one reason why the people so easily resign themselves to fate. Where the people of other countries would struggle against their misfortunes, the inhabitants of India are apt to fold their hands and think it is the will of the gods that they should die.

(1) why population rapidly grows in fertile dis[illegible]
(2) why people of India little [illegible] emigration?
(3) " " " are hardworking?
(4) why are the people of cold countries more [illegible]
(5) why have not the Indians been less enterpris[illegible]
(6) [illegible]

DISTRIBUTION OF POPULATION.

1. India is a country of villages. Nine people out of ten in India live in country villages, and only one out of ten lives in a town or a city.* There are two main reasons for this: (1) India is almost entirely an agricultural country, two-thirds of the people being dependent for their livelihood on the cultivation of the soil; (2) India has few mineral resources, and few great industries (such as there are in Great Britain, Germany, France, or America) situated in towns and employing a large number of hands.

2. The towns and cities of India are almost all old; some of them are very old. In the United States of America almost all, and in England very many, of the towns have sprung into importance as centres of trade and commerce within the last hundred years. In India this is not so. Rangoon (in Burma), Howrah, and Karachi are three exceptions.

Origins of Towns and Cities in India.—The towns and cities of India were:—

1. Ancient Hindu, Mohammedan, or Maratha capitals, usually built round a fort or camp. The chiefs in former troubled times gathered together their forces in some suitable place, built a wall round it, and brought in a crowd of workmen and merchants with their families who could supply the place with food, and the palace of the chief with articles of luxury. "The rapid growth of these towns was due to the wealth of the surrounding districts being drawn into these permanent camps and attracting to them artisans and merchants—whose principal trade in those days was in arms, ornaments, cloths, and other articles of luxury—who now form the bulk of the population." Delhi, for example, in the days of the Moghals, was known as "the camp" of the emperor, and when he moved northwards in the hot season three-fourths of the population moved with him.

Examples.—*Ancient Hindu:* Pataliputra (Patna), Madura, Trichinopoly, Kanauj, Ajodhya, Vijayanagar; the last three are in ruins or deserted. In Rajputana the capitals of the states are the places to which the early Rajput chiefs retreated from the violence of the Moghals. *Mohammedan:* (chiefly

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* A "town" in India means a collection of houses inhabited by not less than 5,000 people. A "city" is a town with over a lakh (100,000) of inhabitants.

in the north) Delhi, Agra, Lucknow, Murshidabad, Allahabad; (or independent capitals in the Deccan) Haidarabad, Ahmadabad, Bijapur. *Maratha:* Poona, Nagpur, Baroda.

2. Sacred places which attracted pilgrims and residents.

Examples.—Benares (Kasi), Madura, Trichinopoly, Prayag (Allahabad), Amritsar, Puri, Gaya. The wealth of Benares depends on the constant influx of rich pilgrims from every part of India. Hindu princes of distant states take a pride in keeping " town-houses " in holy Kasi. Puri is a city of lodging houses for pilgrims.

3. Old centres of trade on a river, or at an important point on a trade route.

Examples.—(On river) Patna, Dacca, and Monghyr on the Ganges; Haidarabad on the Indus. Multan, Peshawar and Shikarpur are ancient centres of trade at points where trade-routes start from India to Baluchistan, Afghanistan, and Persia.

It is interesting to note that whereas in Europe and North America commerce lies at the root of the growth of most towns, in ancient India it was not so. In modern times other influences have been at work.

EUROPEAN ENTERPRISE IN INDIA.

1. European nations obtained *sites for "factories,"* always on the sea-coast at first, and a population of merchants and artisans gradually grew up round them. Examples: the *Portuguese* obtained Daman, Goa and Cochin on the west coast, and Hugli in Bengal; the *Dutch*, Chinsurah on the Hugli; the *French*, Masulipatam and Pondicherri on the east coast; the *English*, Madras and Balasor on the east, and Surat on the west coast.

2. As British supremacy was established, *centres of government* were selected in the different provinces (often, of course, the old capitals were chosen), and these modern political centres have grown into towns and cities. Bombay, Calcutta, Madras, and Lahore are examples.

The British have also founded many hill stations to which they and their families can retreat in the hot weather.

3. As trade between India and the rest of the world grew up, certain *harbours*, able to take in and shelter big steamers, have become the centres of over-sea commerce. Bombay, Calcutta, Karachi, Rangoon (in Burma) are examples.

4. Since railways were made, the towns at their *junctions*, or at their termini, have increased in size and population. Thus, Delhi, Agra, Cawnpur, Ahmadabad, and Nagpur, which were decaying, have received a new lease of life, and are again growing rapidly.

5. The British have also established *military stations*, where troops are stationed (and bazaars grow up round them) for the preservation of order in the country, and for its protection against enemies. Examples: Secunderabad, Bangalore, Meerut, Rawal Pindi, and Peshawar.

GOVERNMENT OF THE INDIAN EMPIRE.

The Empire of India is governed by and in the name of the King of Great Britain and Ireland, who is also Emperor of India. The Emperor's authority over India is exercised in Great Britain by the Secretary of State for India and his Council, and in India by the Governor-General and his Council.

1. The Secretary of State for India and his Council (twelve in number, most of whom have spent at least ten years in India) carry on the business connected with the government of India in Great Britain. The Secretary of State can give orders to any officer in India, including the Governor-General.

2. The Governor-General (who is also the Viceroy or representative of the Emperor) and his Council of seven members constitute the Government of India. These members preside over the departments of Finance, Commerce, Home Affairs, Revenue and Agriculture, Army, Military Supply, Legislation, and Public Works. The Foreign Department (correspondence with native states and with the Secretary of State in Great Britain) is in charge of the Viceroy.

But the supreme authority of the Governor-General in Council is not everywhere in the empire exercised in the same way. Madras and Bombay have Governors appointed by the Crown, and Councils to help them. Bengal proper, the new province of Eastern Bengal and Assam, the United Provinces, the Punjab, and Burma are under Lieutenant-Governors; the Central Provinces are under a Chief Commissioner with powers nearly equal to a Lieutenant-Governor's. Over Coorg, Ajmere-Merwara, British Baluchistan, the North-West Frontier Province, and the Andamans are Chief Commissioners with fewer powers than those of the Central Provinces.

Legislation.—Laws for the Indian Empire are passed (1) by the Imperial Parliament; (2) by the Viceroy's Legislative Council, which consists of the ordinary seven members with ten to sixteen additional members nominated by him. Madras, Bombay, Bengal proper, the United Provinces, the Punjab, and Burma have Legislative Councils which pass laws for their own provinces, with the approval of the Viceroy in Council. Besides these provinces, there are large parts of India called *native states*, which are under the protection of the British Government, but are governed by their own rulers. The

relations between the paramount power and these states are settled by treaties.

1. The states are not allowed to have diplomatic or political dealings with other states or foreign powers, but their subjects abroad are as much entitled to the protection of the British flag as the inhabitants of British territory.

2. The paramount power takes over the duty of providing for the defence of these states; they are expected to help in this when necessary, but are not required to keep up a large army.

3. The management of their internal affairs belongs wholly to the rulers of the most important states, but the paramount power can interfere to set right abuses which threaten anarchy and bloodshed, or to take temporary charge of the administration—for example, when the ruler is a minor.

In the states of Haidarabad, Mysore, Baroda, and Kashmir the relations with the paramount power are carried on through a Resident appointed to each, communicating directly with the Government of India. In the Rajputana States, the Central India States, and in Baluchistan the Resident or Agent of the states is subordinate to the Agent to the Governor-General. In the states under Bengal, the United Provinces, the Punjab, the Central Provinces, Bombay, Madras, and Burma the Agent to the state is subordinate to the Local Government.

Some of the rulers of these states are foreigners. The Nizam of Haidarabad is a Mohammedan, but the people of his state are almost all Hindus. Gwalior, Indore, and Baroda are under Maratha rulers, but only very few of their subjects are Marathas. Three-fourths of the people of the Hindu state of Kashmir are Mohammedans.

POLITICAL DIVISIONS OF THE INDIAN EMPIRE.

The Indian Empire may be divided into four parts—*India proper*, *Frontier India*, *Burma*, and *Frontier Burma*.

1. **India proper includes**—(1.) *British India*—that is, all the territories between the Himalayas in the north, their offshoots in the east and west, and the sea on the south, which have from time to time come under the authority of the British Crown. These are Bengal proper, Eastern Bengal and Assam, the United Provinces of Agra and Oudh, the Punjab, Ajmere-Merwara, the Central Provinces and Berar, Bombay, Madras, Coorg, and the Andaman and Nicobar Islands.

(2.) Those *native states* within the same boundaries, under British protection but not under British jurisdiction. These are the Rajputana Agency, Central India Agency, Haidarabad State, Mysore State, Baroda State, and the states * connected with Bengal proper, the new province of Eastern Bengal and Assam, the United Provinces, the Punjab, the Central Provinces, Bombay and Madras.

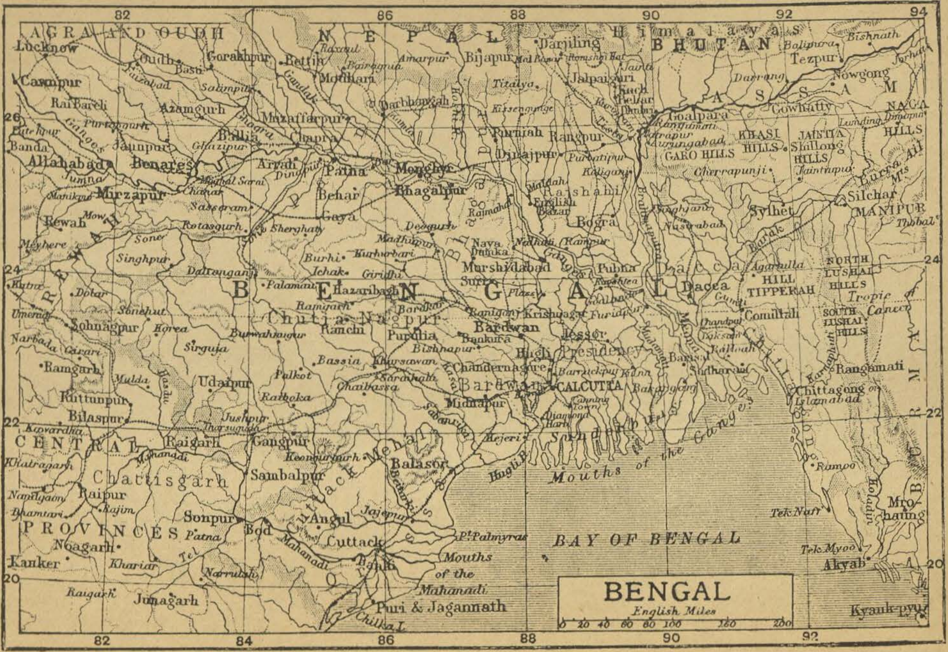
2. **Frontier India** includes those countries on the frontier which are British territory, such as British Baluchistan, or over which the British exercise some degree of protection because they are on the outer edge of the Empire. They are: (1) In the north-west—Baluchistan, the North-west Frontier Province, and Kashmir; (2) in the north—Nepal, Bhutan, and Sikkim; (3) in the north-east—the Assam border tribes and Manipur.

3. **Burma** (Upper and Lower), which is British territory

4. **Frontier Burma**—that is, the country of the Burmese frontier tribes, some of which is British territory and some not.

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* In this book the native states connected with a province are dealt with under that province.



BENGAL
English Miles
0 20 40 60 80 100 150 200
AGRA AND OUDH
NEPAL
Himalayas
BHUTAN
ASSAM
BENGAL
CENTRAL PROVINCES
Chutia Nagpur
Chattisgarh
Cuttack
Orissa
Rajshahi
Dacca
Presidency
Bardwan
Chittagong
BAY OF BENGAL
Mouths of the Ganges
Mouths of the Mahanadi
Lucknow
Cawnpur
Rai Bareli
Allahabad
Benares
Mirzapur
Gorakhpur
Azamgurh
Muzaffarpur
Chapra
Patna
Monghyr
Bhagalpur
Gaya
Darjiling
Jalpaiguri
Rangpur
Dinajpur
Purniah
Goalpara
Gowhatty
Tezpur
Nowgong
Shillong
Cherrapunji
Sylhet
Silchar
MANIPUR
NAGA HILLS
GARO HILLS
KHASI HILLS
JAINTIA HILLS
HILL TIPPERAH
Comillah
Murshidabad
Bogra
Pubna
Dacca
Jessor
Hugli
Chandernagore
CALCUTTA
Bardwan
Bankura
Purulia
Ranchi
Hazaribagh
Midnapur
Balasor
Cuttack
Puri & Jagannath
Chilka L.
Sambalpur
Sonpur
Raipur
Bilaspur
Raigarh
Gangpur
Udaipur
Rewah
Sohnagpur
Ramgarh
Kanker
Junagarh
Angul
Chittagong
Rangamati
Akyab
Kyauk-pyu
Mro-haung
Tropic of Cancer

PROVINCES OF BRITISH INDIA.

BENGAL.

Bengal Province is made up of the plains of the Lower Ganges and certain hill tracts.

Boundaries. — *N.* Nepal and Tibet. *E.* The province of Eastern Bengal and Assam. *S.* The Bay of Bengal and Madras. *W.* The United Provinces and the Central Provinces.

Points for the eye to remember.—The *point where the Gandak enters* the plains half-way along the Nepal border—that is the north-west corner of Bengal proper.

The *Chilka Lake*—that is the extreme point of the coast of Bengal proper towards Madras.

Kanchanjanga—the head of the " Sikkim loop."

/**Physical Aspects.**—Bengal consists of deltas, plain, hill country, and coast-strip.

Deltas.—The great delta of the Ganges, and the delta of the Mahanadi.

Plain.—The Ganges River plain from the head of its delta up to the Chapra.

Hill Country.—The hill country stretching back from the Rajmahal bend of the Ganges, along the Rajmahal Range into the Chutia Nagpur highlands.

Coast-strip.—The coast-strip from the Hugli to the Chilka Lake, including the Mahanadi delta.

Mountains.—*In the west*, the *Chutia Nagpur highlands*, stretching up to the Ganges in the *Rajmahal Hills.* Highest peak Parasnath (4,481 feet), a place of Jain pilgrimage.

In the north, Bengal runs up to the Himalayas only in the " Sikkim loop."

Rivers.—The *Ganges* (with feeders the Son, Gandak, and Kosi, and distributary Bhagirathi-Hugli).

The *Mahanadi*, joined at delta by the Subanrika, Baiturni, and Brahmini.

Lake.—The *Chilka Lake*, on the borders of Madras and Bengal, is a brackish stretch of shallow water connected with the sea, of little importance.

Islands.—There are many mud islands at the mouth of the Ganges delta. Sagar and Diamond Islands are alone worth remembering.

Climate.—The climate of Bengal can be summed up in two words, *hot* and *damp*. Though about one half of the province is north of the Tropic of Cancer, and therefore in the Temperate Zone, yet Bengal, from the sea to the foot of the Himalayas, has a tropical climate.

Rainfall.—The rainfall is very plentiful and certain. It is heaviest on the Orissa and delta coasts. The rain falls chiefly in the summer monsoon from June to October.

Waterways.—Besides the rain that falls in the province itself, Bengal gets the benefit, through the Ganges, of much of the drainage of the Himalayas and Vindhyas. In Bengal man does not trouble much about canals, for Nature has, by her magnificent waterways, saved him the necessity. In the rains the deltas are nearly under water, and every cottager keeps a boat.

Soil.—Added to these advantages, Bengal possesses a very fertile soil, the gift of the Ganges and its tributaries, which bring down rich mud from the uplands and yearly spread a new layer of it over the surface.

Productions.—Owing to these blessings of heat, rainfall, waterways, and soil, Bengal is the richest, most fertile part, and contains the largest population of any province of India. It can grow every kind of crop produced in India, and two or three harvests are reaped in a year. See also page 86, "Productions of the Plains."

Divisions.—Bengal is divided into four divisions:—

Bengal proper.—The delta country.

Bihar.—The Ganges valley in the north-west.

Orissa.—The coast-strip of the Mahanadi delta running up to the hills inland.

Chutia Nagpur.—The hilly country in the south-west lying south of Bihar and west of Orissa.

RACE, LANGUAGE, AND RELIGION

In Chutia Nagpur the people are *Dravidians*; in and round the Ganges delta they are of a mixed *Dravidian and Mongolian*, and in Bihar of a mixed *Dravidian and Aryan*, race. About five-sixths of the population are *Hindus*, and one-sixth Mohammedan. Three Aryan languages—*Uriya* in Orissa, *Bihari* in Bihar, and *Bengali* in Lower Bengal—are spoken.

Owing to its fertility and the absence of mountains, Bengal is very *thickly populated*. Including native states, the province

contains nearly fifty-four millions of people. The number of waterways in Bengal, and the ease with which roads and railways are made, has made it the most intellectually advanced province in India, but the people are not fighters like the hardy mountaineers of the north-west.

CITIES AND TOWNS.

Calcutta (847, or, with suburbs, 1,106 *) lies along the left bank of the Hugli, about 80 miles from the sea. It is the creation of modern commerce, and, unlike most Indian cities, it is not old. When Delhi, Agra, Benares, and Lucknow were ancient towns, the site of Calcutta was occupied by three mud villages.

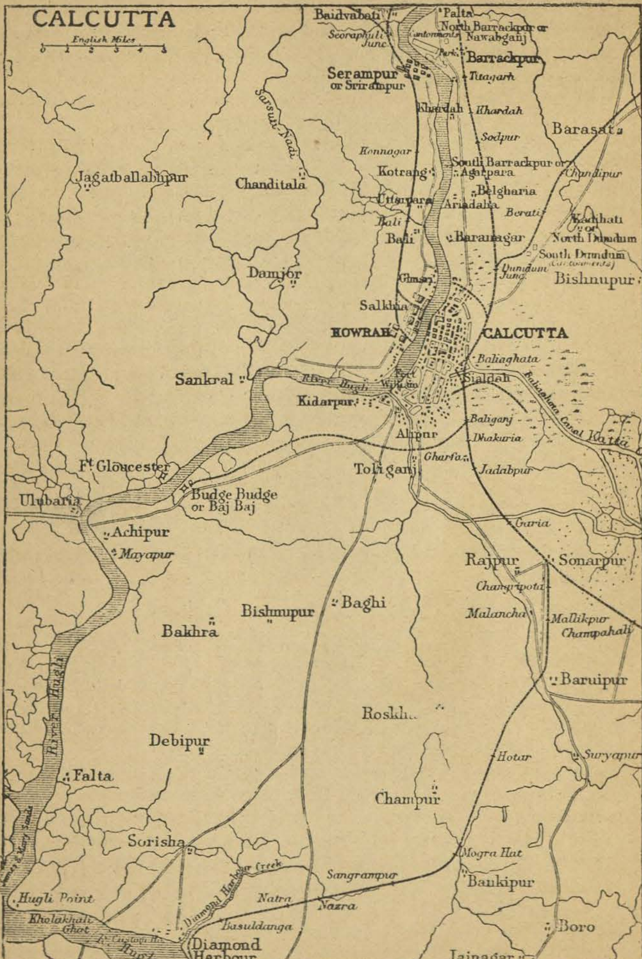
In 1686 the English merchants at Hugli, with their President, Job Charnock, retreated down the stream to a spot on the left bank where they were protected by the river from the Marathas on the other side, and where they had a good anchorage for their ships. This was the beginning of the town, but modern Calcutta dates from 1756, when it was retaken by Clive and Watson from the forces of Nawab Suraj-ud-Daulah, and the first Fort William was built. From that time it has advanced steadily in size and importance, till it is now, including its suburbs, the largest city in the British Empire except London.

Three causes have made Calcutta so important and prosperous:—

1. Since 1772 it has been the *capital of India*, and its wealth and importance have increased as the Empire of India has grown and developed. Besides being the capital of India, it has also been till lately the capital of the old province of Bengal. A large population has grown round the centre, where the Governments of India and of Bengal have their chief offices, where the Law Courts are held, and where the university has its seat.

2. These would have made Calcutta an important town even if it had stood in a desert, but the city owes far more to the second cause—namely, *commerce*. Calcutta is the greatest commercial and trading centre, not only of India, but of Asia. This is largely due to its position. On land:—(1.) Bombay is cut off from the rest of India by the Western Ghats, Madras has behind it the Deccan and Carnatic, where famine often prevails, and inland from Karachi stretches the Great Indian Desert; but Calcutta lies close to wide fertile plains, and in the midst of a rich delta where famine is unknown. (2.) Calcutta is easily reached from all the most important parts of Northern India. The country right up to the north-west frontier on the one side, and to the end of the valleys

* In this book the population of the cities is given in thousands, the last three ciphers being omitted.



John Bartholomew & Co

of Assam on the other, is flat. Hence *roads* can easily be made in all directions, *canals* can be dug where necessary, *railways* are cheaply and easily built, and the numberless *rivers* of the plains and delta form natural waterways. On sea:—(3.) Calcutta is the place where the roads, railways, and waterways of the land meet the great highway of the ocean. It is the great mart where the produce of India's plains is exchanged for the produce and manufactures of every country in the world. It is thus the chief port of India.

The port of Calcutta extends for about five miles along the banks of the Hugli, where ships lie at anchor in the river. There are also docks at Kidderpur. But it is only with difficulty that the Hugli channel can be kept clear for the passage of ships, for its bed is always shifting, and is apt to silt up. On the *James and Mary Shoal*, half-way between Calcutta and the sea, many ships have been wrecked. To keep the fairway of the Hugli clear, dredgers are constantly at work. No ship is allowed to go up or down without a trained pilot on board. For the information of these pilots the state of the river-bed and shoals is daily telegraphed to Calcutta and to Diamond Harbour, 40 miles down the river.

3. Calcutta is, next to Bombay, the greatest manufacturing city in India. The chief of these manufactures is the spinning and weaving of jute. Calcutta is becoming the world's supplier of jute-cloth and gunny bags. There are also cotton mills, paper mills, rope works (hemp and coir), sugar factories, engineering works, and iron foundries. A great advantage to the manufactures of Calcutta is the nearness of the Raniganj coal-field, from which cheap fuel can be got for the engines and steamers. In the manufacture of jute, Calcutta has a great advantage in a monopoly of the crop, which grows at its doors, in cheap labour, cheap land, and cheap coal.

Calcutta, more than any other place in India, resembles a great English manufacturing town. For miles along the Hugli banks stand mills with their tall smoking chimneys, and the river, with its crowded shipping, reminds an Englishman of the Mersey or the Thames. Calcutta suffers from the disadvantage of its flat situation, which makes drainage difficult. In heavy rains a great part of the town is apt to be flooded. The native part of the city has grown so rapidly that much of it is badly built and overcrowded. Some of the public buildings are, however, very fine. *Howrah*, on the opposite side of the Hugli, is really a suburb of Calcutta. Other suburbs are *Alipore*, *Cossipore* (with a gun factory), and *Garden Reach*, the two former now included in Calcutta.

Howrah (157) stands on the Hugli opposite Calcutta, with which it is connected by a bridge supported on boats. The city is a very good example of how quickly a town can increase by trade and manufactures in the modern days of steam and iron. A hundred years ago it was a small village; during the last thirty years its population has nearly doubled, and its importance has vastly increased. There are three main reasons for this: (1) Howrah is the Bengal terminus of the East India Railway, which carries most of the Ganges valley traffic to and from Calcutta; (2) it is really a

part of the port of Calcutta, and shares its immense foreign trade; (3) its jute mills, iron foundries, and other modern industries have largely increased, and are increasing.

Patna (135), on the right bank of the Ganges, in Bihar, is an example of a city, formerly a great trade centre, which is now declining in importance and population. It is thus just the opposite of a town like Howrah. Patna owes its importance to its position. The Gogra, the Gandak, and the Son enter the Ganges close to it, and it is the natural meeting-place of the traffic of these four rivers. Formerly most of the trade between the upper Gangetic valley and Bengal passed through Patna, but in modern times the railway, which conveys goods quicker than boats, has taken away a good deal of the trade of the city, and it has no large modern industries to make up the loss. Its chief industry is the manufacture of Government opium.

OTHER TOWNS.

In Bengal Proper.

Hugli and **Chinsurah**, on the Hugli, form one municipality, with considerable river traffic. Chinsurah was founded by the Dutch.

Chandarnagar, near Hugli, is French.

Murshidabad, on the Bhagirathi, is named after Nawab Murshid Kali Khan, who moved his residence to it from Dacca, and made it the capital of Bengal, which it continued to be during the eighteenth century. It began to decline after 1790, when Lord Cornwallis finally made Calcutta the capital; but it still retains a few of the industries fostered by a luxurious court, such as ivory-carving, embroidery, and silk. Near it is *Kasimbazar*, formerly the centre of European factories, the trade of which has now been transferred to Calcutta.

Midnapur, west of Calcutta, an important railway junction, is connected with Calcutta by a navigable canal.

Darjiling, 7,000 feet above sea-level, on the Himalayas, is an important hill station, and the seat of the Bengal Government during the hot weather. It is connected by a "toy railway" with the Bengal system at Siliguri. Darjiling is the centre of an important tea-growing district.

Raniganj, in the Damodar valley, is the centre of the largest coal-field in India. The mines are connected by rail with Madras, Calcutta, and Bombay.

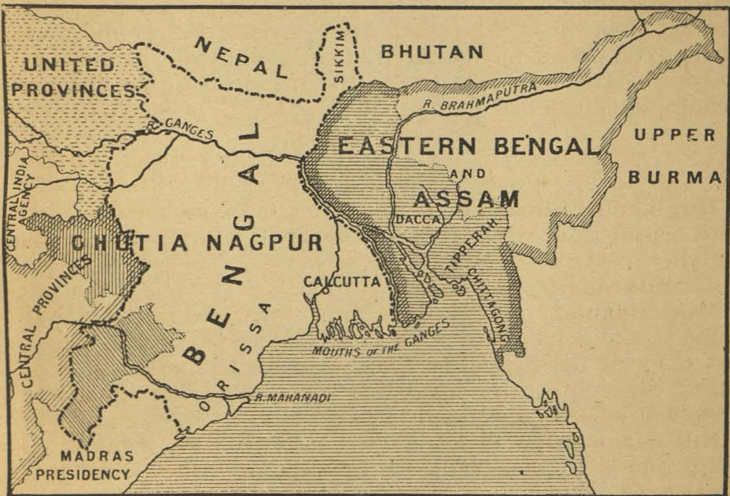
In Bihar.

Bankipur, the civil station, and **Dinapur,** the military cantonment of Patna, are on the south bank of the Ganges.

Bhagalpur, Monghyr, and **Chapra,** centres of river trade on the Ganges.

Gaya, south of Patna, is surrounded with sacred places, and is a great place of pilgrimage. Near it is **Buddh-Gaya,** with a Buddhist shrine and ruins of a palace of Asoka. Here can be seen the sacred *pipal* tree, said to be grown from the one under which Gautama sat.

Muzaffarpur and **Darbhangah** lie north of the Ganges.



THE RECONSTRUCTION OF THE PROVINCES OF BENGAL AND EASTERN BENGAL AND ASSAM.

Note.—The shading shows the different territorial transferences (see text).

In Orissa.

Cuttack, the chief town of the division, is the centre of the Orissa canal system, and on the East Coast Railway. It is famous for its filigree work in gold and silver.

Puri, on the coast south of Cuttack, is one of the most sacred places of Hinduism. During the great car festival of

Jagannath, over a lakh of pilgrims visit the temple. The town itself is simply a place of lodging-houses.

Chandbali and **Balasor** are two small seaports. The latter is famous as one of the earliest coast settlements of the English.

In Chutia Nagpur.

Ranchi and **Hazaribagh,** untouched as yet by a railway, are the chief towns.

Sambulpur, recently transferred from the Central Provinces, is the limit of boat traffic up the Mahanadi.

Industries.—Bengal proper has many industries. Jute weaving is the most important. There are also manufactures of sugar, cotton yarn, silk, oil, indigo, and paper. Bengal proper possesses the largest coal mines, the largest pottery works, and the only iron works (Barrackur) in India, where steel also is now being made.

NATIVE STATES.

The Tributary Mahals of Orissa comprise seventeen small states, of which Moharbhanj is the largest, lying west of Orissa. In 1905 five Uriya-speaking states were added to them and taken from the Central Provinces. "The country is a rugged tract of hill and jungle, the people are backward, many of them belonging to aboriginal tribes."

The Chutia Nagpur States, two in number, are also in hilly country with a backward people. Recently the Bengal Nagpur Railway has run a line through the eastern part of the tract.

History.—After the battle of Buxar in 1764, the *diwani* of Bengal, Bihar, and Orissa was conferred on the East India Company by the Moghal Emperor, Shah Alam. Orissa at that time only included the Bengal district of Midnapur, and Orissa proper was annexed to the Province of Bengal after the second Maratha war in 1803, when it was ceded by the Bonsla Raja of Nagpur. Other provinces, known as the Ceded and Conquered Provinces, were added as conquests went on, but in 1836 these were separated from Bengal under the name of the North-West Provinces. In 1874 Assam was separated from Bengal and made into a province by itself. In 1835 the Raja of Sikkim ceded the hill station of Darjiling, and the country round it was annexed in 1850.

In 1905 the Government of India resolved to relieve the

Government of Bengal of some of its work. The population of Bengal was found to be nearly eighty millions, and the wealth, commerce, and business of the country were increasing. It was thought to be too hard a task for one Government properly to administer this great territory and vast population. Accordingly, the eastern part of Bengal (consisting of the Chittagong, Dacca, Rajshahi divisions, the district of Malda, and the state of Hill Tipperah) was transferred to Assam, and formed into a new province to be called Eastern Bengal and Assam. At the same time five Hindi-speaking states in Chutia Nagpur were transferred to the Central Provinces, and five Uriya-speaking states were taken from the Central Provinces and added to the Orissa division of Bengal proper. By these changes the population of the Bengal Province was reduced from about seventy-nine millions to about fifty-four.

EASTERN BENGAL AND ASSAM.

This new province is made up of the eastern part of the old province of Bengal and the old province of Assam.

Boundaries.—(1) On the east, the line of the Patkais and Lushais separates the province from Burma; (2) on the north, the northern edge of the Brahmaputra valley separates it from Bhutan and Tibet; (3) on the west, a line drawn from the western end of Bhutan to the Rajmahal bend of the Ganges, and then down the Ganges and its distributary, the Hooringottah River, to the sea, gives the boundary which separates the province from Bengal proper.

Physical Aspects.—The province consists of plains, valleys, coast-strip, and hill country.

1. *Plains.*—The Brahmaputra plain, lying between the Garo bend of the Brahmaputra and the Rajmahal bend of the Ganges, and stretching up to the foot of the Himalayas in the north, and down to the eastern half of the Ganges delta in the south.

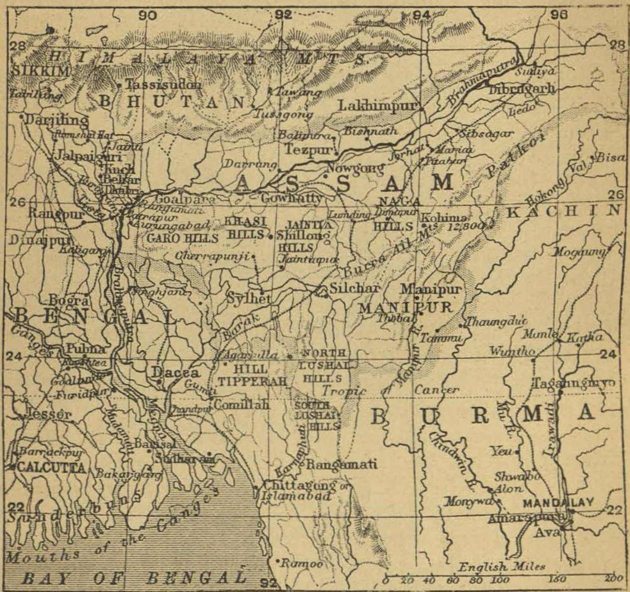
2. *Valleys.*—The upper Brahmaputra valley, and the Surma and Cachar valleys in Assam.

3. *Coast-strip.*—The narrow Chittagong coast-strip from the mouth of the Megna to Cypress Point.

4. *Hill Country.*—The Chittagong and Tipperah hill ranges running north and south in the south-eastern corner, and the Assam mountain tracts, consisting of—(1) the Patkai and Lushai Ranges; (2) the Jaintia, Khasi, and Garo Hills; and

(3) the spurs of the Himalayas bordering the north of the Brahmaputra valley.

Climate, Soil, and Productions.—The Eastern Bengal part of the province resembles Bengal proper in its climate, soil, and productions, and these features of the two provinces have been dealt with together on page 86. The climate, etc., of Assam are treated separately under Assam.



ASSAM.

The north-eastern half of the Assam part of the new province is a country of forest-covered hills and two important valleys.

Shape.—Assam resembles an isosceles triangle pointing north-east, with its vertex at the Himalaya bend of the Brahmaputra, and its base the zigzag line separating it from Eastern Bengal. One side of this triangle runs between the Himalayas and Brahmaputra, and the other along the line of the Patkai and Lushai Hills to the Blue Mountains.

Physical Aspects.—1. The Brahmaputra valley extends, in Assam, from the Himalaya bend to the Garo bend of the river, and lies between the Himalayas on the north and the line of the Patkai, Naga, Jaintia, Khasi, and Garo Hills on the south.

2. The Surma valley, or Sylhet Plain, geographically forms part of the great plain of Bengal. It is watered by the Barak, which, after flowing northwards from the long parallel ranges of the Lushai Hills into the Cachar valley, splits into two streams, the Surma and the Kusiyara. These two rivers water the valley, and rejoin before flowing into the Megna. The Sylhet Plain is thus really the delta of the Megna.

3. A great mass of forest-covered hills, jungles, and marshes, inhabited by wild tribes, and but little known, fills up the rest of the triangle of Assam.

Climate and Productions.—Assam is the dampest part of India; it rains during eight months in the year, and fogs are common. This rain and damp are suitable to the growth of *tea, timber,* and *rice.*

Tea likes a damp climate and well-drained soil—just what it gets on the rainy slopes of the hills. Assam produces nearly two-thirds of all the tea grown in the Indian Empire. The finest tea is grown round Sadiya, near the frontier, at the extreme end of the Brahmaputra valley.

Timber.—Assam has the largest area of virgin forest of any province of the Indian Empire, excluding Burma.

Rice is grown in the valleys, and its cultivation is increasing as the jungle is cleared.

The damp, warm climate also suits the growth of the *india-rubber tree.* The juice, or rubber, is at present collected by wild tribes, but the tree will probably soon be cultivated on a large scale, owing to the increased demand for making the tyres of bicycles and motor cars.

On the whole, Assam produces little in comparison with its area: only the valleys are cultivated.

Race, Language, and Religion.—In the Eastern Bengal part of the province the people are of mixed *Dravidian and Mongolian* race, and the great majority are Mohammedans. The language here is *Bengali.* In Assam the people are of *Tibeto-Burman* race. *Hinduism* is the prevailing religion, but the hill tribes are Animists. Two Aryan languages, *Assamese* and *Bengali*, are most commonly spoken, and

the hill tribes speak dialects of the Tibeto-Burman languages.

Owing to the mountainous nature of the country, and the prevalence of a kind of fever called *kala-azar*, the population is thin except in the Surma valley. The Assamese are lazy, and leave trade and handicrafts to the foreigner. Thus, in recent years, large numbers of immigrants from Bengal have come to Assam to work in the tea-gardens.

Towns in Eastern Bengal.—In this part of the province the population, owing to the fertility of the soil and the absence of mountains, is dense. As the people are engaged in agriculture, and there are few manufactures, there are many villages but few towns. These few towns all lie in the rich alluvial plains at some important point on the Brahmaputra, or on one of its branches, and they all depend on the cultivation of, and traffic in, the great crops of rice and jute grown on the hot, damp plains.

Dacca, the capital of the new province of Eastern Bengal and Assam, stands on the Buriganga, an offshoot of the Brahmaputra. It was the Mohammedan capital of Bengal during the seventeenth century, and was formerly famous for its fine muslins; but during the last hundred years this industry has declined owing to the competition of cheaper Manchester goods, and Dacca is now only half the size it was then. It is reviving as the great jute centre of Eastern Bengal.

Chittagong, 12 miles up the Karnaphali River, is one of the best ports in India, and exports the jute and rice of Eastern Bengal and the tea of Assam. It is now connected with the rich Cachar valley by a railway which is carried up the Assam valley. Chittagong is thus the direct sea-outlet of Assam, and the seaport of the new province.

Other Towns.—*Surajganj*, *Naraingani*, *Goalanda*, and *Nasirabad* are all important centres of jute and rice traffic on the Brahmaputra and its branches.

Towns in Assam.—The population of the Assam part of the province is, on account of the mountainous nature of the country, sparse. The towns are small, and are nearly all on the great waterways. Thus (1) in the Brahmaputra valley *Goalpara*, *Gauhati*, *Sibsagar*, and *Dibrugarh* are centres of river traffic in tea, timber, and rice; (2) in the Surma valley *Sylhet* is the largest town in Assam; *Silchar* lies on the Barak,

in the Cachar valley; *Shillong*, nearly 5,000 feet above sea-level, is a healthy hill station, and the seat of the old Government of Assam.

Industries.—In Eastern Bengal the cultivation of rice, jute, and silk are the chief industries. The production of tea is the great industry of Assam; timber mills are engaged in making tea-boxes, and there is also a little coal mining.

Native States.—*Manipur*, with a capital of the same name, is a long oval-shaped valley among the Lushai Hills in the south-east corner of Assam. It is difficult to reach, but a railway has now been taken from Bengal as far as the Cachar valley.

Hill Tipperah, a small state lying among the mountain ridges which separate the province from Burma.

Kuch Behar, consisting of a fertile strip at the foot of the Bhutan Hills. A railway has recently been made joining the state with the rest of Bengal.

History.—Assam includes—(1) (*a*) the Sylhet or Surma valley, and (*b*) the Goalpara district of the Brahmaputra valley, both of which originally formed part of the *diwani* of Bengal ceded to the East India Company in 1764; (2) Assam proper, or the upper valley of the Brahmaputra, and the Cachar valley, both of which fell into British hands as the result of the first Burmese War; (3) the hill districts which have from time to time been brought under British authority; (4) part of the Western Dwars, a Sub-Himalayan tract lying to the south of Bhutan, which was annexed after the Bhutan War of 1865. All these, which up to 1874 formed part of the province of Bengal, were in that year formed into the separate province of Assam, under a Chief Commissioner. In 1905 a further slice of territory was added. The Chittagong, Dacca, and Rajshahi divisions of Bengal, the district of Malda, and the state of Hill Tipperah were taken from the old province of Bengal and added to Assam. This new province, under the name of Eastern Bengal and Assam, was placed under a Lieutenant-Governor, and the seat of Government was transferred from Shillong, in Assam, to Dacca.

Fertility.—The tract of country watered by the Mahanadi, Ganges, Brahmaputra, and Megna, with their tributaries and deltas, is one of the richest, most fertile, and most thickly populated parts of the earth.

Rainfall.—Through this tract flows all the water which has fallen as rain (or snow) on the greater part of the Himalayas, and as rain on the northern slopes of the Vindhyas and on the eastern offshoots of the Himalayas.

Soil.—The soil of this tract is almost all deep, rich alluvial

mud rubbed into fine loam by the rivers which carry it along and deposit it on their banks.

Climate.—The rainfall is heavy, and the climate is tropical.

Waterways.—The map shows that nearly all of this great tract is splendidly watered by a network of rivers, which irrigate the soil, and are the means of carrying the produce of the country from one part of it to another. These advantages make the Bengals the richest agricultural tract in the Indian Empire.

Productions of the Plains.—The Bengals stand first among the provinces of India for the production of *ricc*, *jute*, *oil seeds*, *indigo*, *tobacco*.

Rice.—A flat country and a hot climate, with plenty of water for irrigation, exactly suit rice ; hence the Bengals grow more rice than all the rest of India put together.

Oil-seeds.—(Gingelly, linseed, mustard, rape, castor, ground-nuts.)—Of these the Bengals produce twice as much as any other province.

Jute.—The Bengals grow practically all the jute produced in India. The reason is that jute, being a plant which quickly exhausts the soil, can only be grown on fields which are constantly renewed by fresh layers of mud—exactly what happens in the Bengals.

Millets, *maize*, and *pulses* are also very largely grown, owing to the fertility of the soil.

The Bengals come second in the production of *spices*, *sugar-cane*, and *opium*. In spices they are beaten by Madras, in the other two by the United Provinces.

Wheat and *barley* are also grown, but not so largely as in the United Provinces and the Punjab, where the cold of the winter months and the drier climate suits them better.

Cotton is a small crop, as there is not much black cotton soil in the Bengals.

Productions of the Hills.—*Tea* is largely grown on the Himalayas near Darjiling, the Chittagong Hills, and on the Chutia Nagpur highlands.

Cinchona, which only flourishes at a high elevation, is grown on a small scale by Government near Darjiling.

THE UNITED PROVINCES OF AGRA AND OUDH.

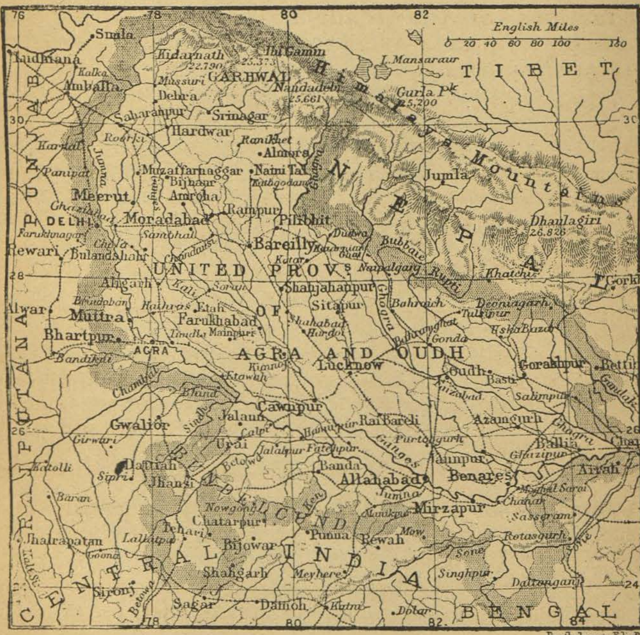
The United Provinces* of Agra and Oudh consist of the plains of the Upper Ganges, the Jumna, and their tributaries, together with the hill tracts north and south.

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* Known as the North-western Provinces and Oudh up to 1902.

Boundaries.—Himalaya-wards, Tibet and Nepal. India-wards, the Punjab, Rajputana, Central India, Bengal proper.

The Himalayan boundary of the United Provinces is our "second step of a stair" in the outline of India—namely, (1) along the inner Himalayas from the source of the Jumna to the Kali River; (2) down the Kali till it enters the plains; (3) thence along the Sub-Himalayas as far as the Gandak. The boundary on the west and south runs (1) down the Tons and Jumna to a point half-way between Delhi and Agra; (2) thence in an irregular line south of the Jumna and Ganges to Chapra.



Points for the eye to remember.—(1) Jamnotri, the north-west corner; (2) the line of the Jumna; (3) the line of the Kali through the Himalayas; (4) Chapra.

Physical Aspects.—The United Provinces can be naturally divided into three regions: (1) the Himalayan mountain region; (2) the Vindhyan hill region south of the Ganges and Jumna; (3) the great plain lying between them.

1. *The Himalayan Mountain Region.*—This consists of the

three ranges of the Himalayas—namely, the Sub-Himalayas, here called the Siwaliks; the outer Himalayas, covered with great forests; and the inner Himalayas, with the mighty snow-clad peaks of Nanda Devi, Kamet, and Badrinath, all over 25,000 feet in height.

2. *The Vindhyan Hill Region.*—These hills consist of the Kaimur offshoots of the Vindhyas, which come down in terraces to the Jumna and Ganges. They are quite different from the Himalayas, as they are much lower, receive only a small rainfall, and are covered with scrubby jungle. Here, owing to the heat and want of water, the trees are small, there are few animals, and scarcely any birds.

3. *The Great Plain.*—This occupies the great bulk of the province, and is one of the richest, best irrigated, and most highly cultivated regions of the earth. It may be divided into two parts:—(1.) The Great Doab,* or country between the Jumna and Ganges. This is a stretch of perfectly flat country, very fertile, and splendidly irrigated, bearing great crops of wheat, barley, sugar-cane, cotton, millets, indigo, and opium. The people are famous for farming. In some parts of the Doab, however, there are *usar* lands—that is, patches made sterile by *reh*, a snow-like deposit of salt which comes to the surface after rain and destroys vegetable life. (2.) Oudh, Rohilkhand, and Gorakpur. This region, comprising the rest of the plains, is also very fertile. It is damper, cooler, more wooded, and less troubled with *reh*. Being damper than the Doab, it grows more rice and less wheat.

Mountains.—The *Gharwal Ranges of the Himalayas*, on the spurs of which are the great peaks of Nanda Devi and Badrinath already mentioned. The *Siwaliks*, or Sub-Himalayas, 2,000 feet high, enclosing valleys called duns or doons.

Rivers.—The *Jumna*, *Ganges*, *Ramganga*, *Sarda*, *Gogra*, *Rapti* from the Himalayas, and the *Gumti* from the plains of Oudh—all from the north. The *Chambal*, *Sind*, *Betwa*, and *Ken*, flowing into the Jumna from the south.

Climate.—This, on the whole, is cooler and drier than that of the Bengals, though in the hot weather the heat is fiercer in the plains. But there is a temperate climate in the cold weather.

* *Do-ab* means "two rivers."

Rainfall.—This is much less than that of the Bengals. It is heavy on the outer Himalayas, but only about 40 inches over the middle of the provinces, and less than 30 inches south of the Ganges.

Waterways.—The natural waterways are not so numerous as in the Bengals, and irrigation canals have had to be dug, especially in the drier parts. The Ganges and Jumna are the feeders of the canals.

Soil.—As in the rest of the Gangetic Plain, the soil is alluvial, deep and fertile; but parts of it are destroyed by *reh*.

Productions.—On the whole, the United Provinces are inferior to the Bengals in fertility, but they are superior to any other province. *They are the great grain-growing districts of India* (*excluding rice*). They stand first for *wheat*, *barley*, and other *food grains* (including millets, maize, pulses, etc.), *sugar-cane* and *opium*.

Wheat and Barley.—These are the great cold weather crops.

Other Food Grains.—These are suited to the United Provinces, as they do not require much rain.

Sugar-cane.—This is largely grown on the irrigated lands.

Opium is cultivated in the south-eastern corner round Benares, and is called *Bengal* opium.

Rice is also grown, but not nearly so largely as in the Bengals, Burma, and Madras with their river deltas.

Cotton.—The black cotton soil is not so extensive as that of Madras, Berar, or Bombay, but a good deal of cotton is grown south of the Jumna.

In *oil-seeds*, *spices*, and *indigo* the United Provinces take an inferior place.

Some *tea* is grown on the Himalaya slopes.

Race, Language, and Religion.—The people are of a mixed *Aryo-Dravidian* race. The *Hindus* number *about 85 per cent.*, and the Mohammedans about 15 per cent. of the population. *Hindi* is the language mostly spoken.

This is the *most densely populated* province in the Indian Empire, but it does not contain so many people as Bengal did before it was divided. or as Bengal proper does now. The population is about fifty millions. Owing to the number of towns, the percentage of the urban population is comparatively large.

Cities and Towns.—In the United Provinces there are many towns, owing to the number of petty chiefships and kingdoms that formerly existed. There are also seven cities, a larger number than in any other province of India.

Cities and Towns.—These are almost all on the Ganges or its tributaries. *On the Ganges*—Ghazipur, Benares, Mirzapur, Allahabad, Cawnpur, Kanauj, and Hardwar. *On the Jumna*—Agra and Muttra (Mathura). *On the Ramganga*—Bareilly, Moradabad. *In the Doab*—Meerut, Saharanpur, and Rurki. *In Oudh*—Lucknow (on the Gumti), Faizabad and Ajodhya (on the Gogra).

Benares (209), the largest city in the province outside of Oudh, is very old. From the earliest times of Aryan civilization a city has stood on the spot. Benares owes its wealth and importance to the thousands of wealthy pilgrims who come every year from all parts of India to the sacred city of Hinduism. It is, besides, the centre of a large fertile district, on a river crowded with boat and light steamer traffic; and now four lines of railway meet in the city. Benares is built on the high bank of the Ganges which slopes down to the burning and bathing ghats on the river's edge. Viewed from a boat in mid-stream, the city with its gilded minarets and its crowds of pilgrims, bathing or praying beside the sacred stream, is very striking; but a walk through its narrow, filthy streets, filled with beggars, asses, and sacred bulls, is not so pleasant. The chief building is Aurangzeb's mosque, but to Hindus the sacred temple of Durga Kund is the most important. In Benares old industries, such as the manufacture of brass vessels, silk cloths, jewels, and toys, still flourish.

Cawnpur (197) is quite unlike Benares. It is a modern town, and owes its importance to modern manufactures. It was not heard of till the British got permission to quarter troops here after the battle of Buxar in 1764. Now it is the most important manufacturing town in the province, and a great railway centre. Its chief industries are cotton, woollen, and jute mills, tanneries and leather works. Government here gets the saddlery and tents required for the army. These industries have attracted many merchants and bankers, and the population has increased 50 per cent. in the last thirty years. Here, during the Mutiny of 1857, the massacre of the garrison and a large number of women and children took place by the orders of Nana Sahib.

Agra (188) is a city old in years, but it is drawing new life from trade and manufactures. Everywhere in the city is seen the hand of the great Moghal emperors. The town

itself is handsome, and better built than any other in the province. Agra is a city of fine buildings. Akbar founded the city, and built the fort in 1566, and soon after began the Fatehpur Sikri palace and the Sikandra (where he lies buried), both at some distance from the city. Shah Jahan either built or finished the Moti Masjid, or Pearl Mosque, and the Jama Masjid. But the finest building in Agra is the Taj Mahal, the "bubble in marble," which Shah Jahan built as a tomb for his wife. It is the finest piece of Mohammedan architecture in India, and perhaps the most beautiful building in the world. The history of the great Moghal Empire at its zenith can be read in the magnificent marble buildings within the red sandstone fort at Agra. In modern times Agra is renewing its youth, and increasing in wealth and population. It is the central grain market for a large district, has cotton mills, and leather and boot works. It has also now become a great railway centre, being connected with Karachi and Bombay, and with the railway system of its own province. A branch of the Ganges canal, and the Jumna also, bring in some traffic by water.

Allahabad (172), the capital, has always owed its importance to its situation at the confluence of the Ganges and Jumna. This confluence has made it both a sacred spot (the Prayag of the Hindus) and an important centre for river traffic. These two points of importance are illustrated by the Magh Mela or great religious fair, held in December and January every year, which attracts as many as 250,000 pilgrims and traders from all parts. It has thus always been an important city, but the fort and city as they now stand were built by Akbar. In modern times Allahabad is not noted for any great manufactures; it is rather the centre to which goods from all quarters of the province are sent in order to be distributed over the country. Its chief importance nowadays is due to its central position in the railway system of India. It lies half-way between Calcutta and the Punjab, and through it passes most of the traffic between Bombay and the fertile Gangetic Plain. It is also the seat of the United Provinces Government, and of a university.

Bareilly (131), in Rohilkhand, has always been a garrison city, round which a large civil population is gathered. It was so in the time of the Moghals, who quartered troops here for the defence of the eastern frontier of their empire; and

in modern days it has a large cantonment of British and native troops, and is the headquarters of a division of the army. Commercially it is not important, but its population is increasing.

Meerut (118) is at least as old as the times of Asoka, who erected one of his pillars here. A hundred years ago it was "ruined, depopulated, and a place of no trade;" but since it was selected as the quarters of a large garrison, it has increased in population and importance. Here the Mutiny broke out in May 1857.

Lucknow (264), the former capital of the kingdom of Oudh, and now capital of that province, is the fifth largest city in India. It is full of mosques, tombs, palaces, temples, mansions, and gardens built by the Nawabs of Oudh and their nobles, but these cannot compare in beauty with the buildings of Agra and Delhi. Lucknow is a good example of a city built round the palace and fort of a ruler who spent the revenues of his kingdom on luxuries. The city is even now filled with workers in silver, gold, and ivory, makers of muslins, silks, and glass-work. In modern times it cannot keep pace with towns like Agra and Cawnpur, and its population is slowly decreasing. During the Mutiny the Residency, held by a small English garrison, was for long besieged by the rebels.

Other Towns.—GHAZIPUR is the Government depot for opium. MIRZAPUR manufactures shellac, and is a mart for grain and cotton. KANAUJ, near Cawnpur, now in ruins and deserted by the Ganges, was a centre of ancient Aryan civilization. HARDWAR, where the sacred Ganges enters the plains, is a place of pilgrimage. MUTTRA (Mathura) is an ancient sacred Hindu city with fine buildings. MORADABAD has metal, brass, and tin manufactures on a small scale. SAHARANPUR is the headquarters of the Jumna canal establishment. RURKI, before the digging of the Ganges canal, was a mere mud village; it is now a flourishing town, and the headquarters of the canal workshops. Here is the Thomason Civil Engineering College, the most important of its kind in India. ALIGARH, north-east of Muttra, is famous for its college for Mohammedans. JHANSI, on the narrow neck of British territory separating the two parts of Central India, is the meeting-place of four railway lines. FAIZABAD was the former capital of Oudh, till Asaf-ad-Daulah moved the court to Lucknow. AJODHYA, adjoining Faizabad, an ancient Hindu capital, is now in ruins.

Hill Stations.—MUSURI, on the Himalayas, overlooking Dehra Dun valley beyond the Siwaliks; NAINI TAL, on a lake in Kumaon; CHAKRATA, LANDOUR, and RANIKHET.

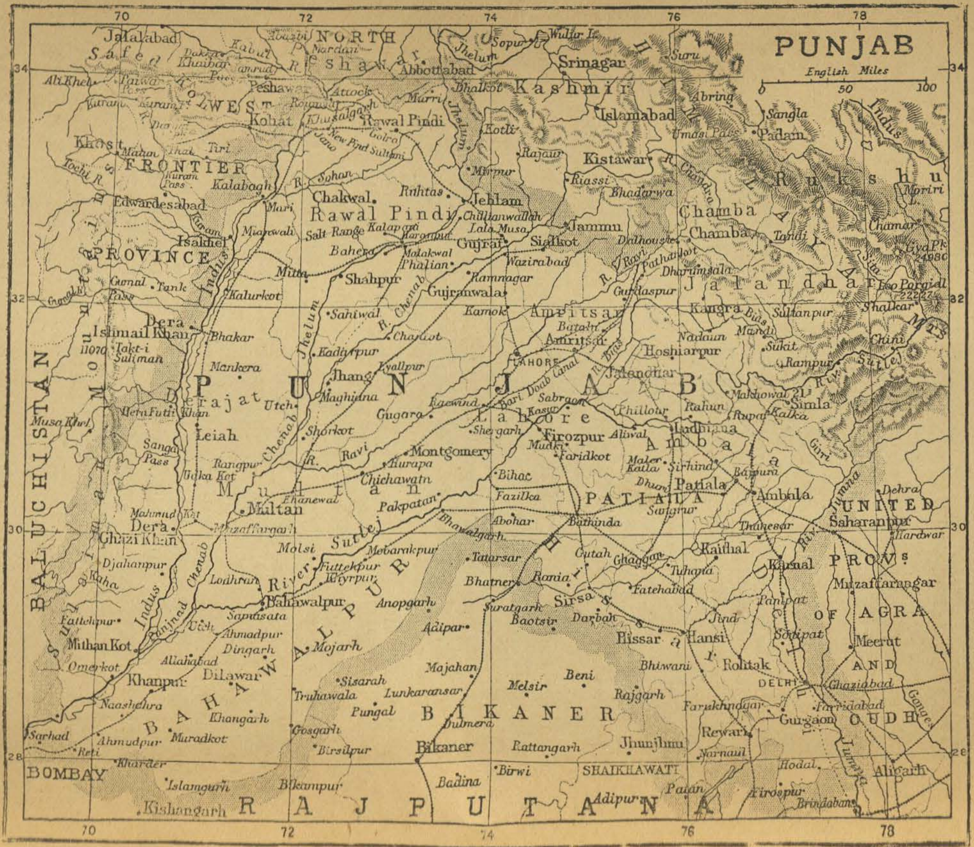
Industries.—Cawnpur is the chief manufacturing centre of the United Provinces, where there are cotton and woollen mills, one small jute mill, and large leather works. There are breweries on the hills. There are many indigo factories, but they are not prosperous. Owing to the number of large towns in the province, there are many flourishing arts and crafts.

NATIVE STATES.

Rampur, a small state in Rohilkhand, which represents all that remains of the Rohilla Confederacy. Protection was promised to the state by the British after the Rohillas were defeated by the troops supplied by Warren Hastings to the Nawab Wazir of Oudh. The chief is a Mohammedan.

Tehri, or native Gharwal, lies high up in the Himalayas, round the sources of the Ganges. The state is mountainous, and therefore thinly populated. The ruling Rajput family was expelled by the Gurkhas in 1804, but at the end of the war the territory to the west of the Alaknanda was restored to the Raja.

History.—The territories obtained from the Nawab of Oudh in 1775, 1798, and 1801, and those won by Lord Lake from Sindhia of Gwalior in 1805, were originally attached to the province of Bengal under the name of the Ceded and Conquered Provinces. In 1816, by the Treaty of Segauli, the districts of Kumaon, Gharwal, and Dehra Dun were taken from their Gurkha invaders and added to British territory. In 1836 the Ceded and Conquered Provinces, thus enlarged, were made into a separate province, called the North-Western Provinces. In 1856 the kingdom of Oudh was added to them by Lord Dalhousie, who at the same time deposed the king for continued misgovernment. After the Mutiny of 1857 Delhi, with the surrounding country, was taken from the province and attached to the Punjab, while a large slice of territory was at the same time transferred to the Central Provinces. In 1901, when the new North-West Frontier Province was formed, the name of the North-Western Provinces was, in order to avoid confusion, changed to the United Provinces of Agra and Oudh.


PUNJAB
English Miles
0
50
100
70
72
74
76
78
34
32
30
28
Jalalabad
NORTH
Abbottabad
Srinagar
Kashmir
Peshawar
Attock
Murri
Islamabad
Kohat
Rawal Pindi
Khost
FRONTIER
Kistawar
Kalabagh
Chakwal
Rahtas
Jehlam
Edwardesabad
Rawal Pindi
Chamba
Jammu
Isakhel
PROVINCE
Gujrat
Sialkot
Shahpur
Jalandhar
Gujranwala
Gurdaspur
Kangra
Dera Ismail Khan
Amritsar
Hoshiarpur
Jhang
Jalandhar
PUNJAB
Lahore
Derajat
Leiah
Montgomery
Firozpur
Faridkot
Simla
Ludhiana
Ambala
Patiala
Multan
Pakpatan
Fazilka
PATIALA
UNITED
Saharanpur
Dera Ghazi Khan
Sutlej
Bathinda
Kaithal
Karnal
PROVS
Bahawalpur
Bhatner
Sirsa
Muzaffarnagar
OF AGRA
Hissar
Hansi
Meerut
AND
Mithan Kot
Khanpur
Bhiwani
Rohtak
DELHI
BAHAWALPUR
BIKANER
Rajgarh
Gurgaon
OUDH
Bikaner
Rattangarh
Jhunjhunu
Rewari
BOMBAY
Aligarh
SHAIKHAWATI
RAJPUTANA
BALUCHISTAN

THE PUNJAB.

The Punjab is a country of doabs and deserts.

Shape.—The Punjab resembles a huge W with its left leg longer than its right.

Boundaries.—*W.* The North-West Frontier Province (beyond the Indus), and Baluchistan (beyond the Sulaimans). *E.* The United Provinces (beyond the Jumna), and Tibet (beyond the Himalayas). *N.* Kashmir. *S.* Rajputana.

Points for the eye to remember.—(1) The point where the Kabul River enters the plains—that is the north-west corner; (2) a point on the Indus 100 miles below its junction with the Panjnad—that is the south-west corner; (3) a point on the Jumna half-way between Delhi and Agra—that is the south-east corner.

Physical Aspects.—The Punjab consists of three parts: (1) the mountainous country in the north and north-east; (2) a table-land in the north-west; (3) the plains in the east and west.

1. *Mountain Region.*—In the north-east the Punjab Province runs far enough up among the Himalayas to include a part of each of their three ranges.

2. The table-land lies north of the Salt Range and between the Indus and Jehlam. It is from 1,000 to 2,000 feet high, and is broken by ravines and nullahs.

3. *Plain Region.*—The rest of the country is a flat plain, most of it sloping very gently south-westwards in the direction of the flow of the rivers.

(1.) *Eastern Plains.*—These comprise all the plain country east of Lahore (in the right half of the W). They make up the most fertile part of the province; besides being watered by the Sutlej, Ghaggar, and Jumna, they are splendidly irrigated, and have a greater rainfall than the western plains. Hence there is a large population, with many towns.

(2.) *Western Plains.*—The plains to the west of Lahore (in the left half of the W) have a fertile soil in some parts, but there is a want of rain. Cultivation is confined to a narrow strip along the river banks, and to the land irrigated by the flood canals of the Indus. In the south the country is little better than a desert. Hence the population here is scanty, and Multan is the only large town.

The plain region is made up of five doabs, and Sirhind, the Derajat, and Bahawalpur. Counting from west to east, these doabs are: (1) the *Sind-Sagar Doab*, between the Indus and the Jehlam-Chenab; (2) the *Jetch Doab*, between the Jehlam and Chenab; (3) the *Rechna Doab*, between the Ravi and Chenab; (4) the *Bari Doab*, between the Beas and Ravi; (5) the *Jalandhar Doab*, between the Beas and Sutlej.

The *Derajat* is the narrow strip between the Sulaimans and the Indus. The *Sirhind Plain* lies between the Sutlej and Jumna; here is the *watershed between the Ganges and Indus river systems*. *Bahawalpur* is a native state embracing the desert country of the Punjab south of the Sutlej, Panjnad, and Indus.

Mountains.—The *Himalayas*, in the north-east, running north-west to south-east. The *Sulaimans*, in the west, running nearly north and south. The *Salt Range*, in a curve, between the Jehlam and Indus.

Rivers.—The *Indus* for the first half of its course in the province forms the western boundary; the second half is nearly 50 miles east of the Sulaimans. The Panjnad conveys into it the combined waters of the five Punjab rivers. The *Saraswati* and *Ghaggar*, between the Sutlej and Jumna, lose themselves in the desert; they are dry except in the rains.

Climate.—Owing to the dryness of the air the climate is one of extremes—very hot in the summer months, cold and even frosty in the winter.

Rainfall.—The Punjab has two periods of rain—the *monsoon* from June to September, and the *winter rains*. The rainfall is of course greatest on the Himalayan slopes, but light elsewhere. In the left part of the W it is very light, and gets lighter as we go west.

Waterways.—Except the Indus and the Five Rivers (the "Punjab"), the province has no natural waterways, hence it has to depend largely on irrigation canals. These are taken from the Five Rivers.

Irrigation.—The Punjab is the province where irrigation on the largest scale is carried on. No country in the world has such a magnificent system of canals. If we look at an irrigation map of India, we shall see that nearly the whole cultivated area of the Punjab depends for its crops on artificial irrigation; for the Punjab rivers have, on account of the very slight local rainfall, no small tributaries. The reasons why the Punjab is so suited for artificial irrigation by canals are: (1) the Indus and its Punjab tributaries come from the snows and ice of the Himalayas, a storehouse of water which never

fails; (2) these rivers are spread out over the whole province like the fingers of an open hand; (3) the flat country of the Punjab allows canals to be dug cheaply from these rivers; (4) the alluvial soil, though thirsty, is rich, and therefore, if water can be brought to it, the cost of the canals can be soon repaid by large crops.

The principal perennial canals in the Punjab are (1) the Jehlam Canal; (2) the Chenab Canal; (3) the Bari Doab Canal ("Bari" is a compound of the two names Beas and Ravi); (4) the Sirhind Canal; (5) the Western Jumna Canal. Besides these, there are many small inundation canals, which draw off water from each of the Five Rivers, and from the Indus, when they are in flood during the hot weather. Of the twenty-eight districts in the Punjab, only ten are without canal irrigation; but of these ten, most are situated among the hills, so that they derive benefit from hill torrents, from the cooler climate and a soil naturally more moist, or from the fact that they can procure well-water for irrigation at a depth of from 15 to 30 feet below the surface.

Soil.—The Punjab being on the whole an alluvial plain, the soil is fertile; but in the south-west there are dry, sandy plains, and over the western half the want of rain makes much of the land useless for cultivation.

Productions.—Owing to its deficient rainfall the Punjab produces little in proportion to its large area. Its cold weather suits *wheat* and *barley*, which are largely grown. These are its main crops, but almost all Indian products are grown to some extent—for example, *millets* and *pulses*, *sugar-cane*, *cotton*, and *rice*. *Tea* is grown in the Kangra district in the Himalayas.

Race, Language, and Religion.—The people of the Punjab are *nearly pure Aryans in race*. The *Mohammedans outnumber the Hindus*, and there are also many Sikhs. An Aryan language, *Punjabi*, is spoken.

The Punjab, including the native states, has a population of nearly twenty-seven millions. It is thickest in the fertile districts of the north and east, and is very thin in the dry tract in the south-west. Owing to the poverty of much of the soil, the percentage of rural population is comparatively low.

Cities and Towns.—We have seen that the western half of the Punjab (the left half of the W) is partly desert, and much less fertile than the eastern half. There are, therefore, few towns in the western half, and these few are either military

defence posts or centres of trans-frontier trade. There are three large cities, all in the fertile eastern half.

Lahore (203) stands on the Ravi, near the centre of the province. When, at the close of the Sikh Wars, it came into the hands of the British, a great part of it was in ruins; but during the last thirty years it has been growing fast. Yet Lahore has few manufactures beyond the making of gold and silver lace, and a little cotton spinning. It is important as being the capital of the province, the seat of the Punjab University, and a railway centre.

Delhi (208), on the Jumna, stands at the point which invading armies from the north-west would naturally fix upon as their permanent camp, for it is the first place to be reached from which they could command the rich plains of the Ganges. If a man were to write the story of Delhi, he would find when he had finished that he had written the history of India. Delhi is the greatest historical city in India. The present city is built on the ruins of several old Delhis, but its buildings date from the times of the great emperors Shah Jahan and Aurangzeb. Three of these buildings, the Shah Jahan Palace and the Jama and Kala Musjids (the Great and the Black Mosques), would alone make it famous all over the world. Delhi, the old Moghal capital, is still the city which the people of India look upon as the capital of India, and here, therefore, the great Durbars of 1877 and 1903 were held. At the present day, though no longer even the capital of its province, Delhi comes next to Haidarabad, Benares, and Lucknow among the old court capitals of India, and is the finest of the four, with an increasing population. Its old court industries of gold and silver filigree work, muslin, wood-carving, and shawl-weaving still remain, and to these it has added modern industries in cotton and flour mills, iron foundries and brush-making. It is also a great centre of trade—its Chandni Chauk bazaar is the finest business street in India outside of Calcutta and Bombay. From Delhi lines of railway run out to the Punjab, the United Provinces, and Rajputana, and it is the centre of the railway systems of North India. The capture of Delhi from the rebels was the turning point of the Mutiny of 1857.

Amritsar (162) means "lake of immortality." It is the holy city of the Sikhs, built round a sacred tank. It is, besides, a flourishing city with a large trade. Its position makes it the centre through which much of the Kashmir and

Afghanistan trade with India passes. Its chief manufactures are Kashmir shawls, made of goats' hair, and carpets.

Other Towns.—1. **Military Stations.**—Till the North-West Frontier Province was formed in 1901, the Punjab was the frontier state next to Afghanistan. Hence it contains a large number of military stations where troops are held in readiness for the defence of India in the north-west. There are garrisons at AMRITSAR, and MIAN MIR, near Lahore, and DELHI; also at AMABLA, LUDHIANA, and JALANDHAR, stations on the railway between Delhi and Lahore, and at SIALKOT, near the Kashmir boundary north of Lahore. In the north-west itself there are three important military posts—RAWAL PINDI, ATTOCK, with a fort guarding the railway bridge over the Indus, and PESHAWAR, which is now the capital of the new Frontier Province. Note that all these posts are connected by railway for the dispatch of troops and guns at a moment's notice. There are no large military stations in the south-west of the province, because from that side an attack is to be met at Quetta, the military outpost at Baluchistan.

2. **Trade Centres.**—These are (besides the three big cities) LUDHIANA, near the Sutlej, a thriving place famed for its manufacture of Kashmir shawls, pashmina cloth, and turbans. Its position on the railway has also made it a great wheat mart. MULTAN, on the Chenab, dating back to the days of Alexander the Great, has always been one of the great trade centres of India, and is nowadays even more important owing to its position half-way down the Indus Valley Railway to Karachi. "The use of Multan as a trade centre seems to be to collect cotton, wheat, wool, oil-seeds, sugar, and indigo from the surrounding country, and to export them to the south; to receive fruits, drugs, raw silk, and spices from Kandahar traders, and to pass them on to the east. The Afghan traders take back indigo, European and country cotton cloth, sugar, and shoes." DERA GHAZI KHAN and KOLABAGH, on the Indus, are frontier trading centres like Multan, but on a smaller scale.

3. **Hill Stations.**—SIMLA, the summer residence of the supreme Government, now reached by a railway from Ambala through Kalka, lies on the Himalayas south of the Sutlej; near it is KASAULI, where patients bitten by mad animals are sent to be cured. DALHOUSIE in the north-east, and DHARMSALA in the Kangra valley (destroyed by an earthquake in 1905), are reached by the railway which runs from Amritsar as far as Pathankot. MURREE is reached by tonga from Rawal Pindi.

Industries.—The mining of salt, the pressing, ginning, and weaving of cotton, the grinding of wheat, and the weaving of carpets (at Amritsar) are the chief industries of the Punjab.

NATIVE STATES.

Of these there are thirty-four.

1. **In the Eastern Plains.**—Six Sikh states, of which Patiala, Jind, and Nabha are the largest, and three smaller Mohammedan states make up this group.

2. **The Simla Hill States,** twenty-three in number, occupy the lower ranges and valleys of the Himalayas. Twenty of them lie east of the Sutlej, and they were restored by the British to their Rajput chiefs in 1815, after the Gurkhas had overrun them. Of these Bashahr is the largest. To the west of the Sutlej lie three, of which Chamba in the north is the largest.

3. The large Mohammedan state of *Bahawalpur*, in the south-west corner of the Punjab, lying along the Sutlej and Indus rivers, and stretching back to the Rajputana desert, is very thinly populated.

Note.—The chiefs of the great Punjab States have always been famous for their loyalty. They furnish many of the Imperial Service troops, some of whom recently served in China. They also offered help in men, horses, and money on the outbreak of the Transvaal War.

History.—The Punjab province really includes a good deal more territory than the land of the Five Rivers. It comprises (1) the kingdom founded by Ranjit Singh, which, as the result of the two Sikh Wars, was conquered and annexed by the British in 1849; (2) a tract east of the Sutlej which had come under British authority in 1808; (3) Delhi and the surrounding country, which were transferred to the Punjab from the North-Western Provinces after the Mutiny of 1857. In 1901 certain districts belonging to the Punjab, including Peshawar, to the west of the Indus, were transferred to form part of the newly-formed North-West Frontier Province.

AJMERE-MERWARA.

This province forms a small island of British territory in the centre of Rajputana. It is made up of two districts. **Ajmere**, the larger district, consists chiefly of an open sandy plain. **Merwara,** the smaller, is a hilly country, and cultivation can only be carried on in the valleys and openings between the hills. The rainfall is small and uncertain, and the population is less than five lakhs. **Ajmere** town, overlooked by the fortress of Taragarh, is the residence of the Agent for Rajputana.

THE CENTRAL PROVINCES AND BERAR.

The Central Provinces consist of highland country, little known, covered with jungle and forest, with three fairly fertile valleys, one sloping westward along the Narbada, one south-

ward along the Wardha and Wainganga to the Godavari, and one eastward along the Mahanadi and its feeders.

Shape and Position.—These can be understood only from the map. The outline of the Central Provinces is like a badly-drawn map of India, the point where the Godavari leaves the province corresponding to Cape Comorin.

Boundaries.—*N.* Central India (eastern part). *N.W.* Central India proper (western part). *S.W.* Berar and Haidarabad. *S.E.* Madras. *N.E.* Bengal proper.

Points for the eye to remember.—(1) The line of the Wardha-Pranhita-Godavari, which divides the Central Provinces from Berar and Haidarabad in the south-west; (2) the line of the Narbada where it separates the province from Central India (western part) in the north-west.

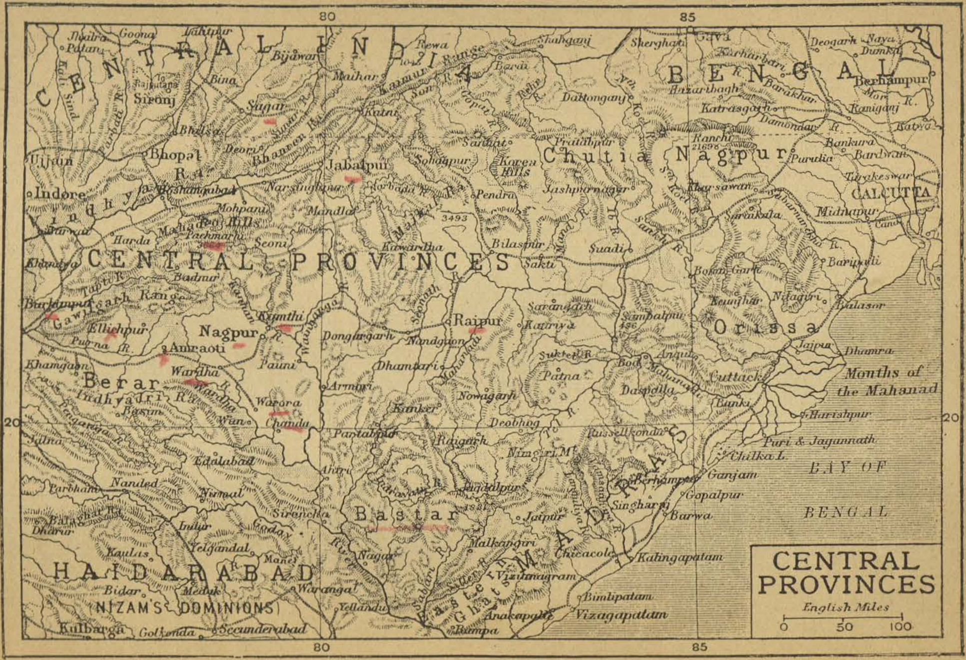
Physical Aspects.—In the Central Provinces the Vindhyas and Satpuras break up into detached ranges and rugged uplands. These are continued right across the northern half of the province to the highlands of Chutia Nagpur in Bengal. Thus we have, in order, from north to south—

(1) The table-land of the Vindhyas in the north, sloping northwards to the Ganges valley; (2) the narrow valley of the Narbada River, which flows westwards among rocks and waterfalls; (3) the table-land of the Satpuras; (4) the great Nagpur plain, stretching west and east across the middle of the province, and sloping partly south in the Wardha and Wainganga valleys, and partly east in the Chhatisgarh plain of the Mahanadi; (5) in the south corner a wild, rugged country stretching along the left bank of the Godavari.

The Central Provinces are the birthplace of rivers. The Narbada and Tapti flow out to the west; the Wardha to the south-east; the Wainganga and Indravati to the south; the Mahanadi to the east; the Ken and Son to the north.

Rainfall, Soil, and Productions.—"It may be said that no part of India is more free from fear of drought than the Central Provinces, where the rainfall has never been known to fail."* It averages about 50 inches. There is little irrigation, and none from canals. The Central Provinces, like Assam, largely consist of hilly country, covered with forests and jungle. Only about one-third of the country is cultivated, chiefly in the river valleys; nearly half is uncultivable waste. In the valleys there is some rich, black soil producing rice and

* In 1899, however, the Central Provinces suffered severely from famine.



CENTRAL PROVINCES
English Miles
0 50 100
CENTRAL INDIA
BENGAL
CENTRAL PROVINCES
Chutia Nagpur
Orissa
Berar
Bastar
HAIDARABAD
(NIZAM'S DOMINIONS)
BAY OF BENGAL
CALCUTTA
Nagpur
Jabalpur
Raipur
Bhopal
Indore
Mouths of the Mahanadi

cotton. Oil-seeds, millets, and pulses are grown on the drier soils, and wheat as a winter crop. The Chhatisgarh plain, through which the Mahanadi flows, is the "land of the threshing-floors," and grows much rice and wheat.

Race, Language, and Religion.—The people are *Dravidians* in race. *Hinduism* is the prevailing religion, but there are many Animists among the hill tribes. *Hindi*, *Marathi*, and a little *Uriya* are spoken, and the hill tribes speak *Gondi*, a Dravidian dialect. Owing to the large area of uncultivated and waste land, the *population is sparse*. There are few town-dwellers. The Satpura Range has been the refuge ground of aboriginal races.

Towns.—**Nagpur** (128), the old Maratha capital of the Bonsla Rajas, and now the seat of the administration of the Central Provinces, is situated in the west, between the Wardha and Wainganga rivers. It is a large centre of increasing trade, and since the railway between Bombay and Calcutta passes through it, its population has largely increased. **Sitbaldi,** a European station, is close to the town.

Other Towns.—KAMPTI, nine miles along the railway line from Nagpur, is a modern town with a military cantonment and considerable trade. JABALPUR in the north, the junction of the Great Indian Peninsular line from Bombay and the East Indian from Allahabad, is one of the most important railway stations in India. Its population is increasing fast. Near it are the famous marble rocks on the Narbada. SAGAR is a cantonment about 100 miles north-west of Jabalpur. BURHANPUR, on the Tapti, at the point where it leaves the Central Provinces, was a former Mohammedan capital of the Deccan, but its manufactures of silk, muslin, and gold thread are now decayed. RAIPUR, in the Chhatisgarh plain, is an important centre of trade in lac, grain, and cotton, which has been increased by its position on the Bengal-Nagpur Railway. WARDHA, HINGANGHAT, WARORA, and CHANDA are all thriving trade towns in the Wardha valley. The first three are joined by a branch railway line which runs through a fine cotton country. Wardha and Hinganghat are famous for cotton growing and spinning; Warora has mines which produce the finest coal in the Central Provinces; Chanda is in the midst of ironstone ores, but they are, as yet, but little worked.

Hill Station.—PACHMARHI, 3,500 feet above sea-level, in the Mahadeo Range of the Satpuras, is the seat of the Government in the hot months.

Industries.—The development of industries in the Central Provinces is slow. The only important ones are the spinning and weaving of the cotton grown in the valleys. There are two important coal mines at Warora. There are few railways in proportion to the area of the provinces.

The **Feudatory States** are fifteen in number.

Bastar, a mountainous region occupying the southern angle of the province, is by far the largest, but it is very thinly populated.

History.—After the Pindari War in 1818, certain districts, known as the Sagar and Narbada Territories, were annexed by the British from Sindhia and the Bonsla Raja of Nagpur. At the same time the British undertook the administration of the rest of the Bonsla kingdom during the minority of Raghuji the Third. When he died childless in 1853, the Nagpur Territories "lapsed" to the British Government. In 1861 the Sagar and Narbada Territories, along with the Nagpur Territories, were formed into a Chief Commissionership, under the name of the Central Provinces. In 1905, when the new province of Eastern Bengal and Assam was formed, five Hindi-speaking native states in Chutia Nagpur were transferred from Bengal to the Central Provinces. On the other hand, five Uriya-speaking states, in the eastern part of the Central Provinces bordering on Madras, were transferred to the Orissa division of Bengal proper.

BERAR.

Berar.—The cotton valley.

Shape and Position.—The outline of Berar is irregular, and can be best understood by studying the map. It is surrounded by the Central Provinces and Haidarabad, except for a short distance on the west where it touches Bombay.

Boundaries.—It is separated by the Wardha from the Central Provinces on the east, and by the Painganga (for a great distance) from Haidarabad on the south.

Points for the eye to remember.—(1) The course of the Wardha and Painganga; (2) their point of junction at Chanda.

Physical Aspects.—Berar is a broad valley lying between the Gawilgarh Range of the Satpuras on the north and the Ajanta Hills on the south. It is really an extension eastwards of the Khandesh valley of Bombay.

Mountains.—The *Gawilgarh Range* and the *Ajanta Hills* (already mentioned) run east and west.

Rivers.—The *Purna*, with many feeders from both ranges, drains the valley westwards into the Tapti. The *Wardha* and *Painganga* drain the upper, or eastern, end into the Godavari.

Rainfall, Soil, and Productions.—The *rainfall* is good, being between 30 and 40 inches in the valley; on the Gawilgarh Hills it is much more. *Soil.*—This is the most important feature of Berar; its valley is covered deep with rich, black soil which is very fertile. *Productions.*—*Cotton*, grown on the black soil, is the chief crop for export. *Millets* are the staple food crops. *Wheat* is grown as a winter crop.

Berar is the "very home of the cotton plant," and takes second place for this fibre, being only beaten by Bombay, a much larger province. For its size, it is the greatest cotton-growing country in India.

Race, Language, and Religion.—The people of Berar are, like those of the Central Provinces, of *Dravidian race*, and mostly *Hindus* in religion. The language is *Marathi*.

Towns.—There are no large towns of over 40,000 inhabitants in Berar, and its population has decreased in recent years owing to plague.

Ellichpur, in the north, unconnected by railway, is the largest town.

Amraoti, on a branch line of the Great Indian Peninsular Railway, is the great cotton centre of Berar.

Akola, near the centre of the province, is on the main line.

Industries.—In Berar the principal industries are the ginning, pressing, spinning, and weaving of its chief product, cotton.

History.—Berar, or the Haidarabad Assigned Districts, has been under British administration since 1853. Under the treaty of that year the British Government undertook to maintain a military force, called the Haidarabad Contingent, for the protection of Haidarabad State. In order to provide for the upkeep of this force the Nizam *assigned* the Berar districts, while the British Government agreed to pay over to the Nizam all the surplus from the administration, after payment of the cost of the contingent. It was found, however, that the treaty provided too costly a system of administration for Berar, and that, in consequence, there was often no surplus at all. In 1902 a new arrangement was made by which the Nizam leased Berar in perpetuity to the British Government for a fixed rent of twenty-five lakhs of rupees a year, and the British Government was to administer the province as they deemed fit, and promised to make proper provision for the protection

of the Nizam's dominions. Berar is now attached to the Central Provinces for purposes of administration.

THE BOMBAY PRESIDENCY.

Shape.—The Presidency of Bombay is made up of a long strip of land, nowhere more than 300 miles broad, along the western seaboard. The northern half of this strip consists of the lower valley and delta of the Indus, and of the Cutch and Kathiawar Peninsulas; the southern half consists of a part of the west coast-strip, part of the Western Ghats, and part of the Deccan behind them.

Boundaries.—*Landward*—Baluchistan, the Punjab, Rajputana, Central India, Berar, Haidarabad, Mysore State, Madras. *Seaward*—The Arabian Sea.

Points for the eye to remember.—(1) Cape Monze—that is the northernmost point of the coast; (2) the boundary between Bombay and Madras—that is the southernmost point of the coast; (3) a point on the Indus 100 miles below its junction with the Panjnad—that is the northernmost point of Sind; (4) the north coast of the Rann of Cutch—that is the southern boundary of Sind.

Physical Aspects.—Bombay Presidency is a mixture of very different kinds of country. It may be divided into five regions, two north and three south of the Narbada.

North of the Narbada: Sind and Gujarat.—(1.) SIND lies between Baluchistan and the Rann of Cutch. Here the rainfall is very light—in some places only 3 inches in the year. A great part of Sind is therefore little better than a flat, sandy desert, the only cultivation being along the banks of the Indus, where canals are dug to carry the water of the river, when in flood, on to the land. Sind is too flat for tanks to be made. (2.) GUJARAT. This includes the peninsulas of Kathiawar and Cutch, and a broad strip of the mainland plain up to the mouth of the Luni. Gujarat consists of low-lying flat country. Near the Narbada it is very fertile, but as we go north the soil gets sandy, and the rainfall rapidly diminishes.

South of the Narbada: the coast-strip, the Bombay Deccan, and the Bombay Carnatic. (1.) THE COAST-STRIP, between the base of the Western Ghats and the sea, extends from the Narbada down to the southernmost part of the presidency, and includes the North Konkan and South Konkan coasts, Goa

(Portuguese), and North Kanara. It is a narrow coast plain, broken by numerous creeks and detached ranges of hills, but, as the rainfall is very heavy, it has rich rice lands and cocoa-nut groves. (2.) BOMBAY DECCAN.—This is the long strip of elevated table-land lying behind the Western Ghats, and extending from the Narbada to the Kistna. It is drained by the Tapti, the upper Godavari, and the tributaries of the Kistna, which have strips of fertile soil along their valleys. But, on the whole, as the Ghats keep off the moisture-bearing winds from the sea, the climate is very dry for eight months in the year, and the rainfall is uncertain. The tract is almost treeless, and is covered with coarse grass. The most fertile part is the Khandesh district in the north. (3.) BOMBAY CARNATIC. This is the part of the Deccan plateau which lies south of the Kistna. The rainfall here is more certain, and the tract contains wide expanses of black cotton soil. Dharwar is the centre of a great cotton-growing district.

Mountains.—The KHIRTHAR RANGE, separating Sind from Baluchistan. The MALWA GHATS, separating Bombay from Central India. Part of the SATPURA RANGE running eastward, with the Rajpipla Hills as their western extremity. The AJANTA or INDHYADRI HILLS, also running eastwards south of the Tapti. The WESTERN GHATS, running south, parallel to the coast.

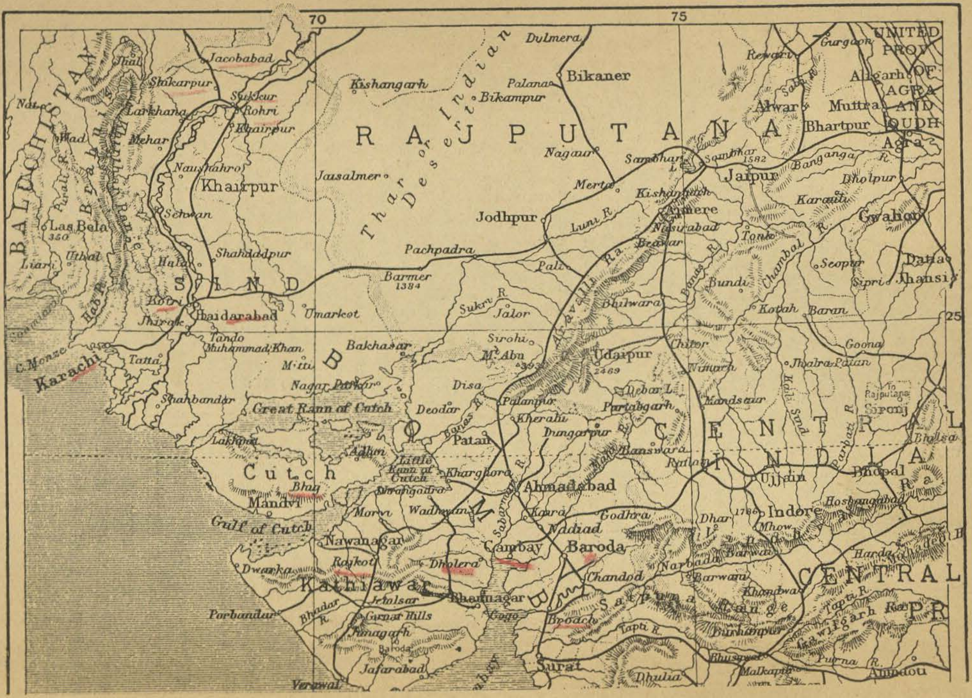
Rivers.—Bombay Presidency is too narrow to have more than the beginnings or the ends of large rivers. The Indus, Narbada, Tapti, Mahi, and Subarmati reach the sea on the Bombay coast; the Godavari and Kistna, with its tributary the Bhima, rise behind the Ghats, and flow south-eastward.

Lake.—The most important natural feature is the Rann of Cutch, already described. It is rather a lagoon, or inland sea, than a lake.

Climate, Soil, and Productions.—**Sind** is almost rainless. It depends for cultivation on irrigation from the Indus, and is very hot in summer and cold in winter. Wheat and barley are its chief crops, and are, of course, grown in winter.

Gujarat has a warm climate, not enough rain for much rice, and some fertile black cotton soil. Hence it grows cotton, millets, and pulses, and some winter wheat.

The Bombay Deccan and Carnatic are too dry for rice, and too hot for wheat, but they have some black cotton soil (especially the Carnatic), and so millets, pulses, and cotton are the chief crops.


70
75
BALUCHISTAN
RAJPUTANA
Indian Desert
Thar
SIND
Khairpur
Jacobabad
Shikarpur
Sukkur
Rohri
Larkhana
Mehar
Naushahro
Sehwan
Las Bela
Hala
Kotri
Haidarabad
Karachi
C. Monze
Tatta
Shahbandar
Tando Muhammad Khan
Umarkot
Jaisalmer
Kishangarh
Bikaner
Bikampur
Palana
Dulmera
Nagaur
Merta
Jodhpur
Pachpadra
Barmer
1384
Luni R.
Sambhar
Jaipur
Alwar
Bhartpur
Agra
Muttra
Aligarh
Rewari
Gurgaon
UNITED PROV. OF AGRA AND OUDH
Dholpur
Karauli
Gwalior
Datia
Jhansi
Seopur
Sipri
Ajmere
Nasirabad
Beawar
Tonk
Bundi
Kotah
Baran
Goona
Chambal R.
Pali
Jalor
Sukri R.
Sirohi
Mt. Abu
Udaipur
2469
Bhilwara
Chitor
Jhalra Patan
Sironj
Bhilsa
Deesa
Disa
Deodar
Palanpur
Kherailu
Partabgarh
Dungarpur
Banswara
Ratlam
Ujjain
Bhopal
Indore
Mhow
Dhar
Hoshangabad
Harda
CENTRAL INDIA
CENTRAL PR
Great Rann of Cutch
Little Rann of Cutch
Cutch
Bhuj
Mandvi
Gulf of Cutch
Patan
Kharghoda
Ahmadabad
Kaira
Godhra
Nadiad
Cambay
Baroda
Chandod
Narbada
Barwani
Khandwa
Broach
Surat
Tapti R.
Burhanpur
Bhusawal
Malkapur
Dhulia
Satpura Range
Purna R.
BOMBAY
Nawanagar
Rajkot
Morvi
Wadhwan
Dhrangadra
Dholera
Kathiawar
Jetalsar
Bhaunagar
Gogo
Porbandar
Dwarka
Junagarh
Jafarabad
Veraval
Girnar Hills
Bhadar R.
Banas R.
Sabarmati R.
Mahi R.
25



John Bartholomew & Co

The Konkan, or Coast-strip, has a very heavy rainfall, and so grows two or three crops of rice, and is rich in cocoa-nut groves.

Race, Language, and Religion.—The people are of mixed Dravidian and Scythian blood. In Bombay Presidency proper, the *Hindus* are to the Mohammedans as three to one; but in Sind they are only as one to three Three Aryan languages—*Sindhi* in Sind, *Gujarati* in the northern and *Marathi* in the southern half of the province—are spoken.

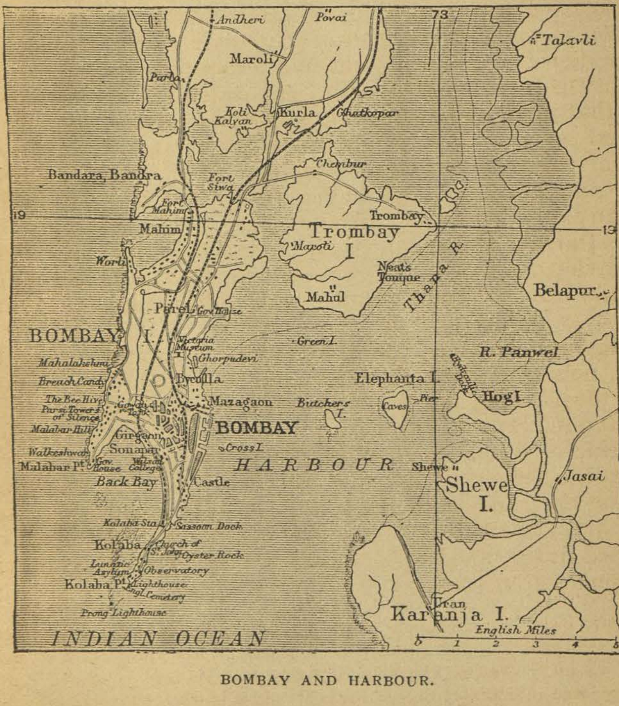
The desert of Sind and the Western Ghats take up a large part of the presidency, and the *population* is therefore sparser than that of most of the other large provinces. Bombay has suffered severely from plague in recent years. The many industrial towns have attracted a large number of people into them, and Bombay has a higher percentage of town-dwellers than any other province of India.

The **Parsis,** of Persian origin and Zoroastrians in religion, are scattered all over the presidency. They are very intelligent and hard-working. Half a lakh of Parsis live in Bombay city.

Cities and Towns.—**Bombay** (776), the capital, on Bombay island, now connected with the mainland, is an example of a great town which has risen to importance by modern trade and manufactures. The island formed part of the dowry of Catherine of Braganza, the Infanta of Portugal, who married Charles the Second of England in 1661. The king transferred it to the East India Company, who in 1684 removed the seat of the presidency to it from Surat. Since then Bombay has increased in size and importance, till it is now the second city for population in India.

Bombay owes its importance to its position on sea and land. *On sea* it has a magnificent harbour, protected by islands, where the largest steamers can lie in safety even at the height of the monsoon. It is nearer Europe than any large Indian port except Karachi, and it is the centre through which most of the trade of India with Europe and Africa passes. *On land* Bombay is nearer the centre of India than any other port, and railways now connect it with Gujarat, the Indo-Gangetic valley, the Deccan, and the Coromandel coast. Bombay is, besides, the great cotton centre of India. It lies close to the cotton-growing districts of Gujarat, Berar, and the Bombay Deccan, and it is the chief seat of the cotton spinning and weaving industry. Bombay Presidency spins about three-quarters of all the cotton yarn and weaves more than three-quarters of all the cotton cloth made in India, and these are chiefly manufactured in the mills of Bombay city. A great deal of this Bombay yarn

and cloth is exported to African ports, the Straits, China, and Japan. The city has some of the most magnificent public buildings in India, and is the seat of a university. Bombay lies on the coast-strip, cut off from the interior by the Western Ghats; but this disadvantage has been overcome by railways north-eastwards over the Thal Ghat, and south-eastwards over the Bhor Ghat. Since 1896 the city has suffered severely from plague, and its population has slightly decreased. In 1891 it was the largest city in India (excluding suburbs), but it is now only second to Calcutta. In Bombay harbour is the island of Elephanta, with famous cave temples.

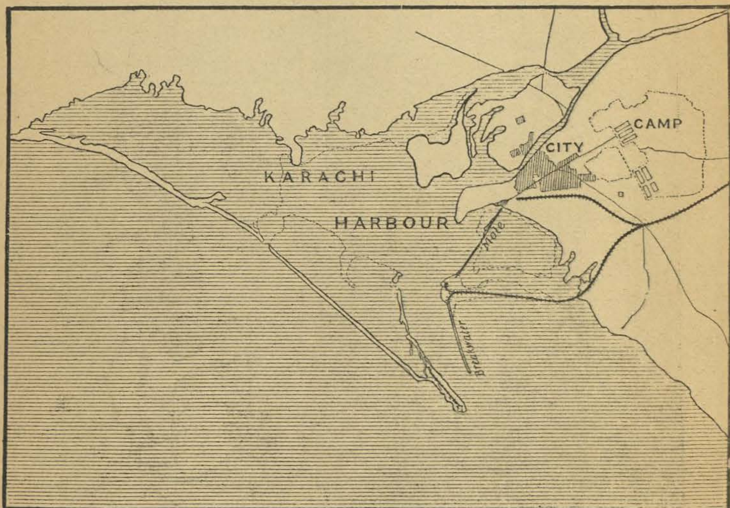


BOMBAY AND HARBOUR.

Karachi (117), at the extreme west end of the Indus delta, is a good example of a modern town which has sprung up into importance under British rule. It is neither an old capital nor the centre of manufactures. It only dates from 1843, when Sind was annexed, and it became the capital instead of Haidarabad. But during the last thirty years, owing to the

opening of the Indus Valley Railway, Karachi has made an enormous advance. Its population, for example, has more than doubled during that time, and it is already the fifth seaport of India and Burma, and will probably soon beat Madras for fourth place.

The reasons for the importance of Karachi are—(1) It has a good natural harbour, which has been greatly improved, and which admits the largest ocean steamers; (2) it is the sea-outlet for the trade of the Indus valley and the traffic from across the North-West Frontier; (3) it is the nearest Indian port to Europe; (4) it is the harbour from which troops from England can be most



easily and quickly sent to the North-West Frontier in case of a threatened invasion. Karachi is the great port for shipping the wheat crops of the Punjab to all parts of the world. After a good wheat harvest, Karachi harbour can scarcely hold the steamers waiting for cargoes to Europe. The disadvantage of Karachi lies in the fact that behind it stretches a comparatively barren and poor country; it has only become important since the railway connected it with the more fertile districts beyond the deserts of Sind and Rajputana. It can therefore never, as a seaport, hope to rival Calcutta, which is the sea-outlet for one of the most fertile valleys in the world.

Ahmadabad (185), on the Subarmati, was the capital of the Mohammedan state of Gujarat, and, three hundred years ago,

was one of the most splendid cities of India, manufacturing articles made of silk, cotton, silver, gold, steel, and wood, required at the court of a great capital. According to the old saying, "the prosperity of Ahmadabad hangs on three threads—silk, gold, and cotton." In modern times these manufactures have somewhat declined, though they still support a large part of the population. But in addition to them, there are now steam mills for spinning yarn and weaving cotton, besides leather and paper-making works. Ahmadabad is also an important railway centre in the "Garden of Bombay." Its size and population are therefore rapidly increasing.

Surat (119), on the Tapti, was, one hundred and fifty years ago, the chief export and import centre of India, and probably its most populous city. It was the first English settlement, and a great cotton port. In modern times its population has gone down, and its trade has been transferred to Bombay.

Poona (153), the ancient capital of the Maratha Peshwas, and the seat of the Bombay Government during the hot weather, stands above the Ghats, 1,800 feet above sea-level, in the Bombay Deccan. It is a large military station, and a Brahmin centre.

Baroda (103), the capital of Baroda State and of the Gaekwar of Baroda's dominions, east of the head of the gulf, is the second city of Gujarat and the third in the presidency. It is a good example of an old Maratha capital, with a palace and gardens, an arena for elephant fights, the houses of bankers and jewellers (who formerly lived on the expenditure of the court), a mass of mean and over-crowded houses, and many Hindu temples. In recent times modern buildings, such as the State Library, public offices, hospitals, and the Baroda College, have been built. Baroda has few modern industries, and during the last twenty years its population has decreased.

Other Towns.—(1.) *On the Gulf of Cambay.*—DAMAN (Portuguese), BROACH (near the mouth of the Narbada), BHAUNAGAR, CAMBAY (in Cambay State, at the head of the gulf), DIU (Portuguese), are, like Surat, ports which have seen better days, and are now only suitable for small craft owing to the silting up of the gulf caused by strong currents and tides. DHOLERA, formerly a cotton mart, is now several miles inland. (2.) *Inland from the Gulf.*—DHULIA is the chief town in Khandesh district; RAJKOT has a celebrated college for the education of sons of the Kathiawar chiefs. BHUJ, far from a railway, is

the capital of Cutch State. (3.) *On the Konkan coast.*—MARMAGAO (Portuguese) and KARWAR (protected by some islets) have good harbours, but they cannot compete with Bombay, and have lost much of their trade importance. (4.) *In the Deccan.*—AHMADNAGAR and BIJAPUR are capitals of old Mohammedan kingdoms which became independent. (5.) *In the Bombay Carnatic.*—SHOLAPUR, HUBLI, and DHARWAR are thriving towns engaged in growing or manufacturing the cotton for which this part of the country is famous. BELGAUM is also a cotton town, and a military station. (6.) *On the Ghats.*—MAHABLESHWAR, a hill station 4,500 feet above sea-level on the Western Ghats, is extremely wet and damp during the south-west monsoon, but is a favourite resort of Europeans in September and October. (7.) *In Sind.*—Sind has been a part of the Bombay Presidency since 1843, but it is not connected with it geographically. The desert of Thar and the Ranns of Cutch separate it from its presidency. and by railway it can as yet only be reached from Bombay by a very long and roundabout route through Rajputana. Hence its communications with Bombay and the south are all by sea through Karachi. Owing to the scanty rainfall in Sind, and the desert nature of much of the country, the population is thin, and there are but few towns.

Karachi is the modern capital (see above). HAIDARABAD, the capital of Sind till 1844, stands at the head of the Indus delta, is the centre on which roads and railways converge, and has a considerable trade. Six miles to the north is MIANI, where Sir Charles Napier in 1843 defeated the Baluchis, and so brought the country under British rule. SHIKARPUR, in upper Sind, is, like Multan, the starting-point of a trade route (through the Bolan Pass) to Afghanistan and Persia. It is important as being one of the few towns in India which have grown up and thriven on commerce alone. SUKKUR on the right bank, ROHRI on the left bank of the Indus, and BUKKUR on an island in mid-stream, are important as commanding the railway bridge which connects Baluchistan with the rest of India. JACOBABAD, on the frontier, is the hottest place in India.

Industries.—The cotton mill industry is by far the most important in Bombay. The people of the presidency also make paper, silk, gold and silver embroidery (in Gujarat and Sind), and dye cloth.

Native States.—Native states, exclusive of Baroda, which is under the direct control of the Government of India, occupy more than a third of the presidency of Bombay, and number, in all, three hundred and sixty-three separate chiefships, but most of them are very small. They are found in each of the five regions into which Bombay is divided.

1. *In Sind.* KHAIRPUR, on the left bank of the Indus, stretching eastward into the Rajputana desert, is the largest native state in Bombay, and is ruled by a descendant of the Mirs, who reigned in Sind up to its annexation by the British in 1843. It is not fertile, and so is thinly populated, but it has greatly advanced during the last ten years.

2. *In Gujarat.* CUTCH STATE is practically an island cut off between the sea and the Rann of Cutch. It has as yet no railway. The capital is Bhuj. KATHIAWAR STATES.—The Kathiawar Peninsula "teems with native chiefs," most of them Hindus, but a few Mohammedan. There are one hundred and eighty-eight separate chiefships. The young chiefs are educated at the Rajkot College. CAMBAY, at the head of Cambay Gulf, is a small state. The other states in Gujarat are grouped round the POLANPUR, MAHI KANTHA, REWA KANTHA, and SURAT AGENCIES.

3. *In the coast-strip of North and South Konkan.* JANJIRA and SAVANTWADI are the chief states.

4. *In the Bombay Deccan.* The largest state is that of BHOR. The SATARA JAGIRS, which were originally under the Raja of Satara, passed under the suzerainty of the British when the Raja of Satara died without heirs and his state "lapsed" in 1849.

5. *In the Bombay Carnatic.* There are several Maratha states, of which KOLHAPUR is the largest. The Raja of Kolhapur is a descendant of Sivaji.

History.—The first English factory in India was founded at Surat in 1613. In 1668 Charles the Second transferred to the Company the island of Bombay, which he had received as part of the dowry of his wife, Catherine of Braganza. By the treaty of Salbai, at the end of the first Maratha War, in 1782, four islands, including Salsette and Elephanta, were handed over to the British by the Marathas. The treaty of Bassein in 1802, and the second Maratha War which immediately followed it, resulted in the acquisition by the British of the districts of Surat, Broach, and Kaira, and the establishment of their influence in Gujarat. By the third Maratha War, which ended in the final downfall of the Peshwa, the greater part of the present area of Bombay Presidency was acquired by the annexation of the Bombay Konkan, Deccan, and Carnatic districts. In 1843 the province of Sind was conquered and annexed by Sir Charles Napier. In 1839 the small but important settlement of Aden, in Arabia, was captured by two British men-of-war, and it is now administered by a Resident, subordinate to the Governor of Bombay. In 1862 the district of North Kanara, on the coast, was transferred from Madras to Bombay.

THE MADRAS PRESIDENCY.

Shape.—If we cut off the end of the peninsula by a sloping line drawn from the Chilka Lake, along the Kistna and Tungabhadra, to the southernmost part of the Bombay Presidency on the opposite coast, and then cut out Mysore State, we have the Madras Presidency.

Boundaries.—North of this line lie in order Bengal proper, the Central Provinces, Haidarabad, Bombay. On all other sides lies the sea.

Points for the eye to remember.—(1) The Chilka Lake; (2) the line of the Kistna-Tungabhadra; (3) the southernmost point of the Bombay Presidency on the west coast; (4) the Nilgiri Hills, where the Eastern and Western Ghats meet.

Physical Aspects.—1. *The East Coast Plain.*—On the east coast from Lake Chilka to Cape Comorin there is a long tract of plain country running back from the sea to the line of the Ghats. It includes the deltas of the Godavari, Kistna, and Kavari. The northern part, between the Kistna delta and Chilka Lake, is called the *Northern Circars*. The southern part, which is much broader, and extends from the Kistna delta to Cape Comorin, is the *Carnatic*. The eastern coast of the Madras Presidency is the *Coromandel Coast*.

2. *The West Coast-strip.*—The Western Ghats run down the west coast to Cape Comorin, and leave a narrow strip between them and the sea. This is the *Malabar Coast*, and is a continuation of the Konkan of Bombay.

3. *Madras Deccan.*—Behind the Eastern Ghats (and lying between them, the Kistna, and Mysore State) is a small bit of the Deccan table-land called the *Ceded Districts*.

Mountains—The high range of the Western Ghats runs right down the western coast to Cape Comorin. At the point where they are met by the Eastern Ghats, they rise to over 7,000 feet in the grass-covered NILGIRI HILLS (Blue Mountains), of which the highest peak is DODABETTA, 8,760 feet. Just south of the Nilgiris is a break in the Ghats called the PALGHAT GAP, which forms a pass between Malabar and the Carnatic, only 1,000 feet high and over 20 miles broad. South of the Gap the Western Ghats rise again into the high range of the ANAMALAIS (Elephant Mountains), the loftiest peak of which, ANAMUDI, 8,840 feet, is the highest point of Southern India. Still farther south the Western Ghats broaden out into the SERUMALAIS and PALNI HILLS.

The Eastern Ghats are really a continuation of the Chutia Nagpur highlands. They run roughly parallel to the coast till nearly opposite Madras, where they slope inland to meet the Western Ghats in the Nilgiris. They give off some broken ranges, of which the NAGARI HILLS, near Madras, and the SHEVAROYS, near Salem, are the best known.

Rivers.—These are the GODAVARI, KISTNA, NORTH PENNAR, PALAR, SOUTH PENNAR, KAVARI, VAIGAI, TAMBRAPARNI. They have been described under the rivers of the Deccan. The Godavari and Kistna are Madras rivers only for the last part of their course. These two rivers, along with the Kavari, are by far the most important on account of their fertile deltas. ✓None of the rivers in Madras are of any value for navigation, though the Godavari has boat traffic in the wet season.

Lagoons.—The KOLAR LAKE lies between the deltas of the Godavari and Kistna, is used for irrigation, and is connected with the sea by a navigable channel.

PULICAT LAKE, a stretch of shallow, brackish water, connected with the sea and the Buckingham Canal, lies north of Madras town, and is of little commercial importance.

West Coast Backwaters.—On the Malabar and Travancore coasts there are long shallow lagoons connected with the sea by channels. They extend along the coast for miles, and are much used for boat and canoe traffic, which here consists of cocoa-nuts, copra, coir, spices, and rice.

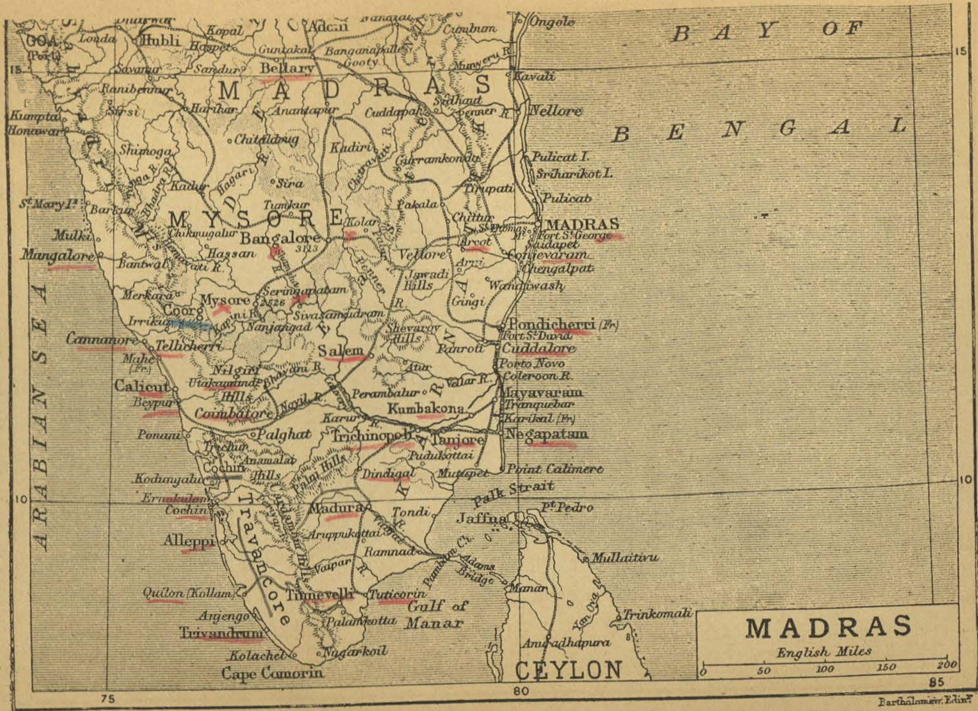
Islands.—The LACCADIVE ISLANDS are not geographically connected with India or Madras, but they are under the Collector of Malabar District. RAMESWARAM ISLAND, separated from the mainland by Pamben Passage, is famous for a Hindu temple.

Climate.—Madras, being situated in the southern part of the peninsula, has a very hot climate, and can produce all the crops grown in India, except wheat and barley, which thrive best in the cold weather of Northern India.

Rainfall.—The *Travancore and Malabar Coast* gets the full benefit of the summer monsoon. There rain never fails, and two or three crops are reaped. The *Northern Circars* look for most of their rain to the summer monsoon. The *Carnatic* receives its chief rainfall in the winter monsoon, but gets showers in July, August, and September sufficient to prepare the ground and start the crops. The *Ceded Districts* in the Deccan get very little rain from either monsoon, and often suffer from drought.

Products of the Plains.—*Rice* requires much water, and so is grown—(1) in the Godavari, Kistna, and Kavari deltas; (2) on the west coast, where the rainfall is over 100 inches;


BENGAL
CENTRAL PROVs
Berar
HAIDARABAD
(NIZAM'S DOMINIONS)
BOMBAY
MADRAS
MYSORE
Bastar
BAY OF
BENGAL
Poona
Aurangabad
Ahmadnagar
Sholapur
Kulbarga
Haidarabad
Secunderabad
Golkonda
Bidar
Warangal
Kolhapur
Belgaum
Dharwar
Hubli
Bellary
Karnul
Adoni
Cuddapah
Nellore
Ongole
Bezwada
Ellore
Rajamahendri
Cocanada
Coringa
Yanam (Fr.)
Mouths of the Godavari
Masulipatam
Mouths of the Kistna
Vizagapatam
Bimlipatam
Vizianagram
Chicacole
Kalingapatam
Barwa
Gopalpur
Ganjam
Chatrapur
Berhampur
Jaipur
Jagdalpur
Nagpur
Chanda
Wardha
Akola
Pauni
Armori
Dhamtari
Patna
Daspalla
Russellkonda
Bhowani Patna
Raigarh
Sironcha
Nirmal
Edalabad
Indur
Nander
Parbhani
Jalna
Daulatabad
Ellora
Manmad
Assaye
Ajanta
Khamgaon
Chalisgaon
Dhond
Bhima R.
Nira R.
Mahabaleshwar
Pandharpur
Barsi
Osmanabad
Akalkot
Bijapur
Kaladgi
Muddebihal
Raichur
Lingsugur
Kopal
Hospet
Sandur
Guntakal
Gooty
Banganapalle
Nandial
Cumbum
Anantapur
Harihar
Ranibennur
Sirsi
Shimoga
Chitaldrug
Kadiri
Sira
Tumkur
Kolar
Bangalore
Chikmugalur
Kadur
Barkur
Mulki
Kumpta
Honawar
GOA (Port.)
Londa
Sangli
Tirupati
Chittur
Pakala
Gurramkonda
Pulicat
Pulicat L.
Sriharikot L.
MADRAS
Fort St George
Kavali
Guntur
Nizampatam
Kistna
Nalgonda
Mahbubnagar
Pangal
Karimnagar
Medak
Khamamet
Yellandu
Nagar
Malkangiri
Rampa
Tuni
Anakapalle
Singhapur
Nimgiri Mt.
Deobhog
75
80
85
20
15


MADRAS
English Miles
0 50 100 150 200
BAY OF BENGAL
ARABIAN SEA
MADRAS
MYSORE
CEYLON
Travancore
Gulf of Manar
Palk Strait
Bangalore
Mysore
Coorg
Salem
Bellary
Madura
Trichinopoli
Tanjore
Kumbakona
Coimbatore
Calicut
Mangalore
Cannanore
Tellicherri
Cochin
Alleppi
Trivandrum
Cape Comorin
Pondicherri (Fr.)
Cuddalore
Negapatam
Nellore
Ongole
Vellore
Arcot
Tinnevelli
Tuticorin
Jaffna
Trinkomali
Mullaitivu
Anuradhapura
Point Calimere
Hubli
Goa
Nilgiri Hills
Palghat
Dindigal
Ramnad
Bartholomew, Edin.

and (3) under tanks throughout the Carnatic, where water can be stored in hollows of the ground. The Madras Presidency is pock-marked with tanks. *Millets* (cholam and kambu), *ragi*, *maize*, and *pulses* grow where there is not enough irrigation for rice; *indigo*, *sugar-cane*, *spices*, and *oil-seeds* (especially ground-nuts) on good soil; *cotton* is grown on the black cotton soils of Tinnevelly, Coimbatore, and Bellary; *tobacco* in Madura and Coimbatore districts, and in the "lankas" or islands on the Godavari and Kistna. *Jute* is beginning to be cultivated in the Northern Circars.

Products of the Hills.—*Tea* on the Nilgiris, Anamalais, and Palnis; *coffee* on the lower ridges of the Western Ghats, in the Nilgiris, the Wynaad, and Travancore; *cinchona* on the Nilgiris; *pepper*, *cardamoms*, *teak*, *ebony*, and *sandal-wood* on the Western Ghats, especially on the Travancore part of them.

Seashore.—*Cocoa-nuts*, which like moisture and a smell of the sea, are common all along the coast, especially on the south and west facing the south-west monsoon.

Sea.—The channel between the southern coast and Ceylon is shallow, sandy, and but little disturbed by storms. It is therefore very suitable for the growth of the oyster shell-fish, from which pearls are obtained. Pearl-fishing is a thriving industry on the shores of the Manaar Gulf.

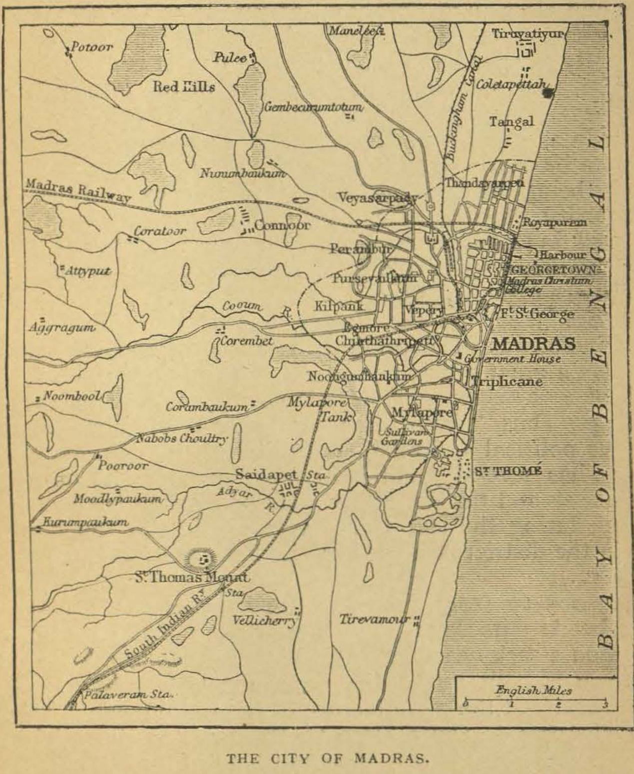
Race, Language, and Religion.—The people are of *Dravidian race*, and speak Dravidian languages—namely, *Tamil* in the south, *Telugu* in the north, and *Malayalam* on the west coast. Nearly nine persons out of ten are *Hindus*; there are comparatively few Mohammedans, for this part of India was never overrun by them. Madras, including its native states, contains nearly two-thirds of all the *Christians* in India. The *population is dense*, especially in the east coast deltas and in Malabar, but not so dense as in Bengal and the United Provinces.

Cities and Towns.—**Madras** (509) is the third largest city in India. It was founded in 1639, when the East India Company obtained a grant of land on which a fort and factory were built. Round this grew the business part of Madras, called "Black Town,"* and several villages now connected

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* Now called George Town, in memory of the visit of George, Prince of Wales, in 1906.

with it by roads and streets. This makes Madras much less crowded than Bombay or Calcutta, and explains why it has been called "the city of magnificent distances." In modern times it has become the terminus of four railway lines (to Bombay, Tuticorin, Calicut, and Calcutta); a harbour has



THE CITY OF MADRAS.

been built, and the Buckingham Navigation Canal connects it with Bezwada and the Kistna delta. Though the third city of India in size and importance, Madras cannot compare with Bombay or Calcutta as an industrial or trade centre. In the first place, its harbour is not a storm-proof shelter for

ships,* and it is silting up ; secondly, it has to compete against many small seaports on both the Coromandel and Malabar coasts; thirdly, Madras has not, like Calcutta and Bombay, a province behind it which produces large quantities of the things which foreign countries want, such as wheat, jute, cotton, opium, and indigo; nor is it a city which manufactures cotton yarns and cloth (like Bombay), or jute (like Calcutta). Even the raw cotton, tea, coffee, and spices of the Madras Presidency are largely shipped from other ports in it. It is not surprising, therefore, that only some five per cent. of the foreign trade of India passes through Madras, and that it is being beaten by the modern seaports of Karachi and Rangoon. Madras may therefore be said to owe its importance not so much to trade as to its being the capital of a large presidency and the seat of a university, though, of course, its harbour, railways, and a few local industries also help. The observatory at Madras keeps the time for India and Ceylon : the clocks at all railway stations are regulated from it.

Madura (106), on the Vaigai, one of the oldest cities of South India, was the capital of the ancient Pandyan kingdom. It is also a great religious centre. The great temple, with its "hall of a thousand pillars," elaborately carved, is the chief building. Thus "from time immemorial Madura has been both the political and religious capital of the extreme south." Madura has several small industries, such as the making of brass vessels and turban cloths. Its population has more than doubled during the last thirty years, owing to the improvement in the district produced by the Periyar irrigation scheme. (See p. 52.)

Trichinopoly (104), on the south bank of the Kavari and at the head of its delta, is an important railway centre. Its temple, on a rock nearly 300 feet high, is a landmark for miles. The town is built round the rock, and is famous for *swami* silver work, and the manufacture of the well-known "Trichinopoly cheroots." Quite close to the town is the celebrated Vishnu temple of Srirangam on an island in the Kavari. Like Madura, Trichinopoly only became a city at the last census of 1901.

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* Steamers lying in Madras harbour keep steam up, ready to run to the open sea for safety if a storm comes on. Otherwise they would be dashed to pieces on the beach.

Other Towns: Inland.—TANJORE, in the Kavari delta, is the centre of a rich rice country. It is an old capital with a famous temple, and jewellery manufactures. SALEM, at the foot of the Shevaroys, is an important agricultural centre, formerly celebrated for iron mines now no longer worked. BEZWADA, at the head of the Kistna delta, is a railway junction and a thriving town. BELLARY, in the Madras Deccan, is a military station. DINDIGUL (famous for a cigar factory) and TINNEVELLY are on the railway to Tuticorin, south of Trichinopoly. COIMBATORE, near the foot of the Nilgiris, on a branch line, is an agricultural centre.

Coast Towns.—Along both coasts are many small seaports engaged in the coasting trade. *On the east*, from north to south, are Kalingapatam, Bimlipatam, Vizagapatam, Cocanada, Masulipatam, Pondicherry (French), Cuddalore, Negapatam, and Tuticorin. KALINGAPATAM and COCANADA have good roadsteads. The latter town is absorbing the traffic of the rich Godavari and Kistna deltas, and has nearly trebled its population in the last thirty years. At PONDICHERRI French steamers call. NEGAPATAM is the port for steamers to Rangoon and the Straits Settlements. TUTICORIN, the terminus of the South Indian Railway, is the chief port for the Ceylon and Colombo trade, with a large passenger traffic in coolies for the Ceylon tea-gardens. *On the west*, from south to north, are Quilon (in Travancore State), Cochin, Beypore, Calicut, Tellicheri, Cannanore, and Mangalore, which ship the cocoa-nuts, coffee, and spices of the coast to Bombay, Colombo, and Europe. CALICUT, where Vasco da Gama landed in 1498, gave its name *Calico* to the cloth introduced by the Portuguese into Europe. The railway from Madras, through the Palghat Gap, here strikes the west coast, up which it is being taken to Mangalore.

Note.—Not one of these places is a real seaport; a few can take in small sailing vessels in fair weather. Owing to the shoal water along the coasts, ocean steamers have always to lie some miles off shore.

Temple Towns.—The Carnatic coast was less ravaged by Mohammedans than the rest of India, and that is why so many fine specimens of Hindu temples are to be found here. The whole of the Carnatic between Madras and Tuticorin is a country of Hindu temples. Those of MADURA, TRICHINOPOLY, TANJORE are the most famous, but CONJEVARAM (KANCHI), CHIDAMBARAM, KUMBAKONAM, RAMESWARAM (on the island of that name), and many other smaller places, are visited by crowds of pilgrims every year. On the seashore at MAHABALIPURAM, a day's sail down the Buckingham Canal south of Madras, are the famous Seven Pagodas, solid rock-cut temples with Sanskrit inscriptions. They are now quite deserted.

Hill Stations.—OOTACAMUND, COONOOR, and WELLINGTON, on the Nilgiris: KODAIKANAL, on the Palnais; YERCAUD, on the Shevaroys.

Ootacamund ("Ooty") is the finest hill station in India. It lies over 7,000 feet above sea-level, and enjoys a temperate climate. In December and January water freezes over night. It is the summer residence of the Governor and his Council. WELLINGTON is a sanatorium for soldiers. KODAIKANAL has an observatory for the study of sun-spots.

Historical Towns.—MADRAS, TRICHINOPOLY, ARCOT (70 miles inland from Madras), PONDICHERRI, FORT ST. DAVID (in ruins), near Cuddalore, are

famous for their sieges during the wars of Clive and the French. The field of WANDEWASH lies near Conjevaram. On the right bank of the Tungabhadra, in Bellary district, can still be traced the magnificent ruins of VIJAYANAGAR, the old Hindu capital, whose rajahs made war on the sultans of the Deccan.

Industries.—Madras has many industries. The preparation of cotton (pressing, spinning, and weaving), indigo, oil, tobacco, rice (husking), leather (tanning), and sugar are the main industries. The making of salt and the curing of fish also employ many hands. Handloom weaving is the most important domestic industry, but it is declining.

Native States.—These consist of two important territories, Travancore and Cochin, on the west coast, and three small chiefships isolated amid British territory—namely, Pudakota, Banganapalle, and Sundur.

TRAVANCORE occupies the southernmost part of the wet Malabar coast between the Arabian Sea and the Western Ghats. It consists of (1) a fertile strip of flat coast intersected by backwaters, where rice and cocoa-nuts are the chief crops; (2) a hilly region inland, where teak, cardamoms, pepper, and coffee are largely grown. In Travancore, which has always been cut off from the rest of India by the Western Ghats, and which boasts that it has never been under Mohammedan rule, the old customs of Hinduism still remain unbroken, and caste rules are very strictly kept. It has recently been connected with the rest of the mainland by a line joining Quilon with Tinnevelly on the South Indian Railway. The state is well governed, and a large proportion of the people is educated. There are many native Christians.

Towns.—TRIVANDRUM is the capital. QUILON and ALLEPPI are seaports.

COCHIN, a smaller state to the north of Travancore, has also a coast-strip and a mountainous interior, with a climate and productions like Travancore. It has also been recently connected with the rest of India by railway. A branch line from Ernakulam now meets the Madras Railway which runs from Madras to Calicut, through the Palghat Gap. Cochin is, like Travancore, a well-governed state, with a large educated population.

Towns.—The capital is ERNAKULAM, on a backwater. Cochin, the chief town and seaport, is British territory, forming part of the Malabar District of Madras, and was acquired from the Dutch in 1795.

PUDAKOTA, near Trichinopoly, BANGANAPALLE and SUNDUR in the Ceded Districts, are small chiefships.

History.—The first bit of territory in the presidency acquired by the Company was the site of Fort St. George in

Madras city, which was obtained from a petty raja in 1639. In 1763 the tract of country round Madras (now Chengalpat District) was granted by the Nawab of the Carnatic. In 1765 the Northern Circars, comprising all the coast-strip north of the Kistna delta (the present districts of Ganjam, Vizagapatam, Godavari, and Kistna), were ceded to the Company by Shah Alam at the same time as he granted them the *diwani* of Bengal. In 1792, at the close of the second Mysore War, Tippu Sultan gave up the districts of Malabar, Salem, and part of Madura. In 1799, after the third Mysore War, the Company took the west coast-strip of Kanara, Coimbatore, and the Nilgiris. In the same year the Raja of Tanjore resigned his territories, and in 1800 the Ceded Districts of Anantapur, Karnul, Bellary, and Cuddapah were "ceded" by the Nizam to pay for the upkeep of a subsidiary force. Lastly, in 1801, the Nawab of the Carnatic resigned the remainder of his vast territories, extending from the Kistna to near Cape Comorin, into the hands of the British. In 1862 the northern half of Kanara (North Kanara District) was transferred to the Bombay Presidency.

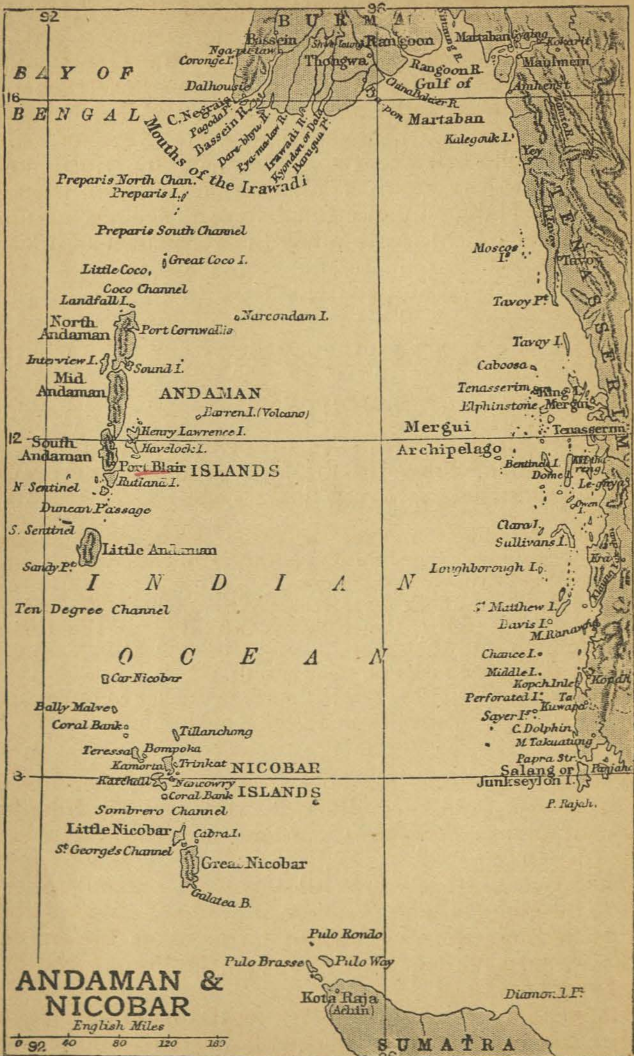
COORG.

Coorg is a small state lying to the south-west of Mysore, and forming a very rugged and hilly part of the Mysore plateau. The chief town, MERCARA, little more than a village, is nearly 4,000 feet above sea-level. The climate resembles that of Mysore, but the rainfall is much heavier. Rice is cultivated in the narrow valleys, and coffee and cardamoms on the hills. One-third of its area consists of forests. The people are a fine race of hardy mountaineers.

History.—In 1834 the Raja of Coorg, who had been treating his subjects most cruelly, was deposed, and the state was, by the unanimous wish of the people, taken under British administration, and is now British territory. The state, along with the military station of Bangalore in Mysore, is administered by the Resident at Mysore.

THE ANDAMANS.

The Andamans.—The Andaman Islands, together with the Nicobars, lie on the eastern side of the Bay of Bengal. Geographically they belong to Burma; politically they are


ANDAMAN & NICOBAR
English Miles
0 40 80 120 160
BURMA
BAY OF BENGAL
Bassein
Rangoon
Thongwa
Martaban
Maulmein
Amherst
Rangoon R.
Gulf of Martaban
Kalegouk I.
Yey
Coronge I.
Dalhousie
C. Negrais
Pagoda P.
Bassein R.
Mouths of the Irawadi
Preparis North Chan.
Preparis I.
Preparis South Channel
Little Coco
Great Coco I.
Coco Channel
Landfall I.
North Andaman
Port Cornwallis
Narcondam I.
Interview I.
Sound I.
Mid Andaman
ANDAMAN ISLANDS
Barren I. (Volcano)
Henry Lawrence I.
Havelock I.
South Andaman
Port Blair
Rutland I.
N Sentinel
Duncan Passage
S. Sentinel
Little Andaman
Sandy Pt.
INDIAN OCEAN
Ten Degree Channel
Car Nicobar
Bally Malve
Coral Bank
Tillanchong
Teressa
Bompoka
Kamorta
Trinkat
Katchall
Nancowry
Coral Bank
NICOBAR ISLANDS
Sombrero Channel
Little Nicobar
Cabra I.
St. George's Channel
Great Nicobar
Galatea B.
Pulo Rondo
Pulo Brasse
Pulo Way
Kota Raja (Achin)
SUMATRA
Diamond Pt.
Moscos I.
Tavoy
Tavoy Pt.
Tavoy I.
Caboosa
Tenasserim
King I.
Elphinstone
Mergui
Mergui Archipelago
Bentinck I.
Domel
Clara I.
Sullivans I.
Loughborough I.
St. Matthew I.
Davis I.
Chance I.
Middle I.
Perforated I.
Sayer Is.
C. Dolphin
Papra Str.
Salang or Junkseylon I.
P. Rajah
92
96
16
12
8

separated from it, and are administered by a Chief Commissioner.

The Andamans consist of two groups, the Great and the Little Andamans. PORT BLAIR, the penal settlement to which convicts from India are sent, is on the South island of the Great Andamans. The aborigines are Negritos, a very black and woolly-haired race of short stature, quite uncivilized. The Nicobar group, consisting of eighteen islands, is inhabited by Malays of Mongolian race. The population of the Andamans and Nicobars is less than a quarter of a lakh.

NATIVE STATES.

RAJPUTANA.

Shape.—Rajputana resembles a roughly-drawn square, with its corners corresponding to the four points of the compass. Its south-eastern side is a very broken line.

The point N almost touches the Sutlej. The point E almost touches the Jumna. The point S almost touches the Vindhyas. The point W is in the Great Desert.

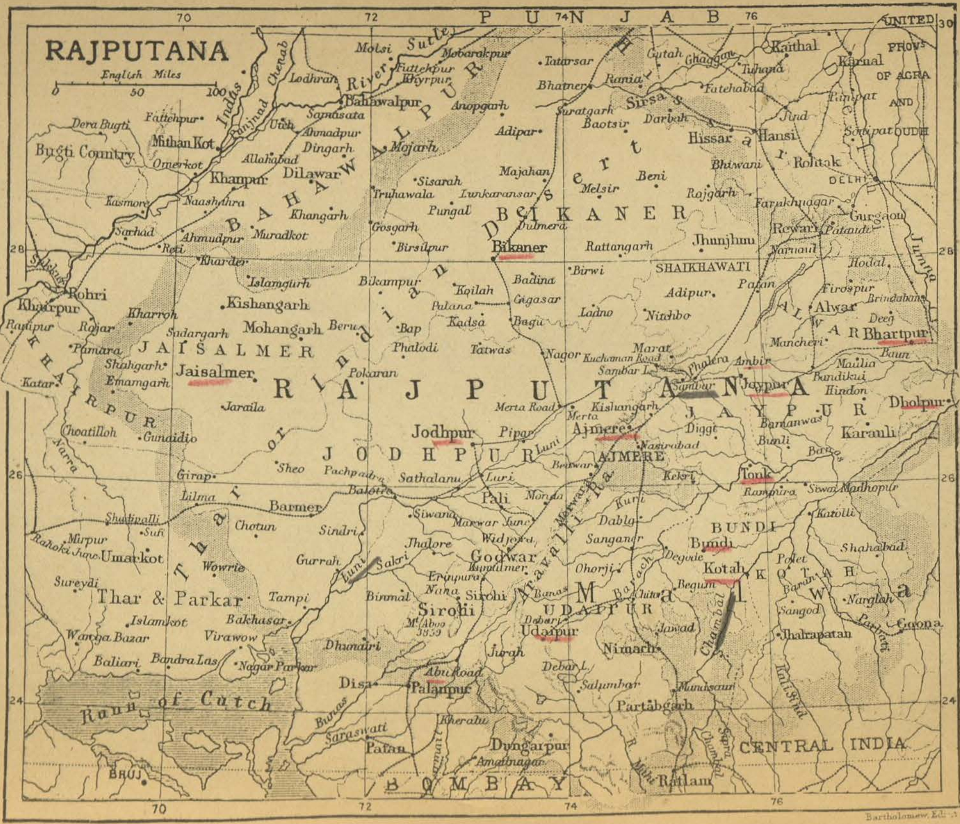
Note.—(1) The middle point of WS touches the Rann of Cutch where the Luni River flows into it; (2) the Chambal leaves Rajputana at the point E; (3) the lines WN and NE correspond to the two legs of the Punjab W.

Boundaries.—*N.E.* The Punjab and United Provinces. *S.E.* Central India. *S.W.* Bombay (Gujarat and Sind). *N.W.* Sind and the Punjab.

Physical Aspects.—Rajputana consists of two unequal parts separated from each other by the Aravalli Mountains, which run across the country from the south-west to the north-east.

1. The part north-west of the Aravallis takes up three-fifths of the country, and is sandy, ill-watered, and unproductive. It becomes worse as we get farther from the Aravallis, and the western borders next Sind and the Punjab end in the Great Desert or THAR.

2. The smaller section (two-fifths), south-east of the Aravallis, is higher and more fertile. It consists of the western part of the Malwa plateau, is much better watered, being drained by


RAJPUTANA
English Miles
0
50
100
PUNJAB
UNITED PROVS OF AGRA AND OUDH
Bugti Country
Dera Bugti
Fattehpur
Mithan Kot
Omerkot
Kasmore
Khanpur
Dilawar
Bahawalpur
Samasata
Ahmadpur
Dingarh
Allahabad
Uch
Lodhran
Mobarakpur
Anopgarh
Mojarh
Khangarh
Muradkot
Naashahra
Sarhad
Ahmudpur
Reti
Kharder
Rohri
Khairpur
Rajupur
Pamara
Katar
Kharroh
Islamgurh
Kishangarh
Mohangarh
Sadargarh
JAISALMER
Jaisalmer
Shahgarh
Emamgarh
Jaraila
KHAIRPUR
Choatilloh
Gundidio
Narra
Girap
Lilma
Shadipalli
Sufi
Mirpur
Umarkot
Sureydi
Thar & Parkar
Islamkot
Warga Bazar
Baliari
Bandra Las
Nagar Parkar
Virawow
Bakhasar
Tampi
Wowrie
Chotun
Barmer
Sindri
Gurrah
Rann of Cutch
BHUJ
Thar or Indian Desert
Sisarah
Truhawala
Gosgarh
Birsilpur
Bikampur
Bap
Phalodi
Pokaran
Sheo
Pachpadra
Balotra
Sathalanu
Luni
Pali
Siwana
Jhalore
Godwar
Erinpura
Sirohi
Nana
Birmal
Mt Aboo 5659
Dhunairi
Disa
Palanpur
Abu Road
Kheralu
Patan
Saraswati
Banas
Dungarpur
BOMBAY
Lunkaransar
Pungal
Majahan
Adipar
Bikaner
BIKANER
Dulmera
Kailah
Palana
Kadsa
Tatwas
Badina
Gigasar
Bagu
Nagor
Merta Road
Merta
Pipar
Jodhpur
JODHPUR
RAJPUTANA
Tatarsar
Bhatner
Suratgarh
Baotsir
Rania
Sirsa
Darbah
Gutah
Ghaggar
Tuhana
Fatehabad
Kaithal
Karnal
Panipat
Jind
Sonipat
Hissar
Hansi
Bhiwani
Rohtak
DELHI
Melsir
Beni
Rajgarh
Faruknagar
Gurgaon
Rewari
Pataudi
Narnaul
Jhunjhunu
Rattangarh
Birwi
SHAIKHAWATI
Adipur
Patan
Ladno
Nitchbo
Marat
Kuchaman Road
Sambar L.
Phalera
Ambir
Jaypur
JAYPUR
Kishangarh
Ajmere
AJMERE
Nasirabad
Beawar
Diggi
Kekri
Tonk
Bamanwas
Bunli
Alwar
ALWAR
Firospur
Brindaban
Deeg
Bhartpur
Hodal
Jumna
Mancheri
Baun
Maulia
Bandikui
Hindon
Dholpur
Karauli
Sawai Madhopur
Rampura
Katolli
BUNDI
Bundi
Kotah
KOTAH
Shahabad
Degode
Begum
Chambal
Nanglah
Sangod
Jhalrapatan
Goona
Kali Sind
Dabla
Sanganer
Marwar Junc.
Widjora
Kuri
Aravalli
Ohorji
Chitor
Mewar
UDAIPUR
Udaipur
Debari
Jawad
Nimach
Jurah
Debar L.
Salumbar
Mandsaur
Partabgarh
CENTRAL INDIA
Ratlam
Mahi R.
Amarinagar
Bartholomew, Edin

the Chambal and its feeders, and slopes down to the valley of the Jumna.

Mountains.—The ARAVALLIS are the only mountains in Rajputana. They begin in Mount Abu (5,650 feet), on the south-west border, and stretch in a distinct range up to Ajmere; after which they are lower and more broken, but can be traced up to the famous "Ridge" under the walls of Delhi in the Punjab.

The MALWA GHATS run south-east from the southern end of the Aravallis to the Vindhyas.

Rivers.—(1.) In the north-western section the LUNI is the only river, draining the western slopes of the Aravallis into the Rann of Cutch. (2.) In the south-eastern section the table-land is drained by the CHAMBAL and its feeders (the BANAS left bank, KALI-SIND and PARBATI right bank) from the Vindhyas into the Jumna. The SUBARMATI and MAHI drain the south-eastern corner into the Gulf of Cambay.

Lake.—SAMBHAR LAKE, near Jaipur, is a shallow salt lake from which thousands of tons of salt are manufactured yearly.

Rainfall.—Rajputana on the whole gets very little rain, and that little is uncertain. The part west of the Aravallis becomes drier as we go west into the desert, where only 5 inches fall in the year. In the part east of the Aravallis the rainfall increases as we go east, from 20 to 30 inches.

Waterways, Irrigation, Soil, and Productions.—(1.) In the north-western half the Luni is the only river; it is salt, and nearly dry except in the rains. There are few tanks, and wells have sometimes to be dug 300 feet down before water is reached. The soil is poor, and there are great tracts of sand. Hence, in this half, only a single scanty crop can be grown—namely, *millets*, in the better part of the desert land, and *wheat* or *barley* as a winter crop on the banks of the Luni. The people here live by pasturing herds of cattle, sheep, and camels, moving about from place to place in search of fodder.

(2.) In the south-eastern half the country is more fertile, has a greater rainfall, and is better watered by rivers and tanks. Two crops can be grown—namely, millets or oil-seeds in the autumn, wheat or barley in the winter. In favoured places sugar-cane, cotton, and opium are grown. On the whole Rajputana is a poor agricultural country, and is often visited by famine.

Race, Language, and Religion.—The Rajputs are nearly pure *Aryans*; almost all of them are Hindus, speaking *Rajas-*

thani, an Aryan language. Rajputana, especially the part to the west of the Aravallis, is little cultivated, and the *population* on the whole is *sparse*. Owing to the number of the towns and the poverty of the soil, the percentage of town-dwellers is large.

Towns.—In Rajputana the state takes the name of the capital, and the capital takes the name of the chief who founded it. The towns resemble each other. They are the places to which the Rajput chiefs retreated when their power in Northern India was broken by the Mohammedan invasions. They are therefore all built on sites suited for defence or refuge, usually a rocky ridge or small hill. Here the chief would build a fort, with a palace and pleasure gardens near it, and fence in his followers in the town by a strong, thick wall. There is an abundance of fine building stone and marble in Rajputana, and hence the towns, both from their position and the materials of which they are built, have a very striking and picturesque appearance. These towns have but little trade, and are maintained by the expenditure of the courts of the chiefs and their nobles. The large towns are capitals of states of the same name. Jaipur, Udaipur, Alwar, Ajmere, Jaisalmer, Bikaner, and Jodhpur are all examples of this type of city.

Jaipur (160), in the north-east, is one of the finest Hindu cities in India. It is surrounded by hills crowned with forts, with the palace in the middle. It is the centre of banking firms and of trade between Delhi, Agra, and Rajputana. Near it is the ruined city of Amber, the ancient capital.

Ajmere (British), on a plateau of the Aravallis, has two famous colleges, and is the residence of the British Agent. It is the capital of the small British province of Ajmere-Merwara.

Udaipur is one of the most picturesque cities in India, with a granite and marble palace. **Jaisalmer, Bikaner,** and **Jodhpur** lie out on the Rajputana desert to the west. **Tonk** (the capital of a Mohammedan state), **Kotah,** and **Bundi** lie on the Banas-Chambal plateau. **Bhartpur,** on the north-east frontier, is famous for the sieges of its fort by Lord Lake in 1803, and Lord Combermere in 1827. **Dholpur,** on the Chambal, in the east, is the capital of a Jat state. **Chitor** has a famous fortress, and was formerly the capital of Udaipur. **Mount Abu,** 3,945 feet above sea-level, at the southern end of

the Aravallis, is a sanatorium, with some fine marble temples built by the Jains.

History.—Rajputana is the country where the Rajputs found refuge when driven out of Hindustan by the Mohammedans. It comprises twenty states, with the small British district of Ajmere-Merwara in the middle. After the third Maratha War Lord Hastings carried out the pacification of Central India and Rajputana. In 1818 most of the Rajput chiefs entered into subsidiary treaties with the British Government, by which they agreed to accept British protection and pay tribute. The chief states are Udaipur (or Mewar), Jodhpur, Jaisalmer, Bikaner, Jaipur, Alwar, Bhartpur, Dholpur, Karauli, Bundi, Tonk, Kotah, and Jhalawar. Bhartpur and Dholpur are Jat states, and Tonk is Mohammedan. The rulers of all the others are Rajputs.

Udaipur, the parent state, occupies a hilly table-land at the southern end of the Aravallis. The Rana belongs to a family which ranks first among the Rajputs of all India, and which boasts that it has never given a daughter in marriage to an Emperor of Delhi.

Jodhpur, to the north-west of the Aravallis, is much the largest state, though not the most populous, as the country is barren.

Jaisalmer and **Bikaner,** in the extreme west, are large states in the desert part of Rajputana; they occupy the most thinly populated tract in all India.

Jaipur, partly in western and partly in eastern Rajputana, lies on both sides of the Northern Aravallis. Though not the largest, it is the most populous state in Rajputana.

The other states of Alwar, Bhartpur, Dholpur, Karauli, Bundi, Tonk, Kotah, and Jhalawar are much smaller, and lie in eastern Rajputana, in the country watered by the Chambal and its tributaries. In the midst of these states lies the small British district of Ajmere-Merwara. It is under a Chief Commissioner who is, at the same time, Agent to the Governor-General for Rajputana.

CENTRAL INDIA.

Central India, or the Central India Agency, consists of a large number of native states grouped into nine Political Agencies, under the Agent-General to the Governor-General. The Agent-General resides at Indore.

Position, Shape, and Boundaries.—It is impossible to understand the position and outline of this part of India except by a careful study of the map. Its shape is, roughly, a long triangle, with the line of the Vindhyas and the Son as hypothenuse, the Chambal as one side, and the Jumna and Ganges as the other.

Note.—(1.) This triangle is only a very rough way of remembering the outline. (2.) No part of Central India actually touches the Jumna or Ganges.

The whole tract is divided into two parts by a narrow neck of the United Provinces, which separates the larger or western half (Central India proper) from the smaller or eastern half (Bandelkhand and Bagelkhand).

1. The *western part* comprises the eastern half of the Malwa plateau (Rajputana east of the Aravallis being the other half) lying between the Chambal and Betwa, and sloping north-east from the Vindhyas to the Jumna valley.

Its natural boundaries are therefore—*S.* The Vindhyas, separating it from the Central Provinces. *W.* The Chambal, separating it from Rajputana. *E.* The Betwa, separating it from the "neck" formed by the United Provinces. *N.* The Jumna valley, separating it from the United Provinces.

Note.—(1.) In the south-west corner the boundary goes beyond the Vindhyas, across the Narbada valley, and over the Satpuras. (2.) The triangle of land between the Chambal and Parbati (the Khotah and Jhalawar States) belongs to Rajputana.

2. The *eastern part*—Bandelkhand and Bagelkhand—comprises the thin part of the triangle sloping northward towards the Jumna and Ganges valleys.

Boundaries.—The eastern part is surrounded by the United Provinces lying on the north, east, and west, and by the Central Provinces and Bengal on the south.

Physical Aspects.—Central India forms part of the hilly table-land watered by the right-bank tributaries of the Jumna and by the Son, and sloping down to the Jumna and Ganges valleys.

Mountains.—(1.) Western half. The VINDHYAS run near the southern border, the highest peaks (2,500 feet) overlooking the Narbada valley, 1,700 feet below, on the south. The SATPURAS (only for 100 miles) occupy the south-west corner, rising to 3,000 feet, and in one peak to over 5,400 feet. Part of the MALWA GHATS runs from the south end of the Aravallis to the Vindhyas.

(2.) Eastern half. The KAIMUR RANGE, a continuation of the Vindhyas along the left bank of the Son.

Rivers.—(1.) Western half. The CHAMBAL (with its right-bank feeders the Kali-Sind and Parbati), the SIND, and BETWA, all draining the country from the Vindhyas into the Jumna. The NARBADA. Central India includes about 100 miles of this river and its valley between the Vindhyas and the Satpuras.

(2.) Eastern half. The DHASAN, the KEN, TONS, and SON flow across the slope on their way to the Jumna and Ganges.

Rainfall, Waterways, and Productions.—The rainfall is good, being about 30 to 40 inches in the western, and 40 to 50 inches in the eastern, half. Central India is well drained by the eight rivers above mentioned and their feeders, but they are but little used for irrigation. The Son canals are in Bengal. The soil is rich, and well cultivated. Central India produces the usual millets, pulses, and rice ; wheat in the cold weather, and cotton and sugar-cane.

The Malwa plateau, in the western half, is especially famous for *opium* and *tobacco*.

Race, Language, and Religion.—The people are mostly of *Dravidian stock*. *Hinduism* is the prevailing religion, and *Hindi* the prevailing language. Nearly a quarter of the population is made up of aboriginal tribes, *Gonds* and *Bhils*, in the Satpura Hills. These are largely *Animists*, and speak *Dravidian dialects*.

Towns.—WESTERN DIVISION (Central India proper).

In Gwalior State.—**Gwalior** (89), the capital and centre of the Maharajah Sindia's dominions, is the largest town in Central India. It is famous for its rock fortress, a mile and a half long and 340 feet high ; for its old palace, one of the best specimens of early Hindu architecture in India; and for its Jain temples.

Ujjain, in a detached part of Gwalior, north of Indore, is one of the most sacred cities of Hinduism. It was formerly the capital of Malwa.

Bhilsa, on the Betwa, is noted for its tobacco. Near it are temples and Buddhist topes, among which the Sanchi tope is the most famous.

Neemuch, near the border of Rajputana, on the railway half-way between Indore and Ajmere, is a military station.

In Indore State.—**Indore**, the capital, the centre of the Maharajah Holkar's territories and the residence of the Agent-

General of Central Indore, lies north of the Vindhyas, 1,800 feet above sea-level, on the railway which strikes off to Ajmere from the Great Indian Peninsula line. Near it is MHOW, the largest military station in Central India.

In Bhopal State—**Bhopal,** the capital, 1,700 feet above sea-level, is surrounded by a wall two miles long.

EASTERN DIVISION.

In Panna State.—**Panna,** the capital, a well-built city, was formerly famous for diamonds, which were dug up near it.

In Rewa State.—**Rewa,** the capital, north of the Kaimurs, is the largest town in Bagelkhand. At Umaria, in this state, is an important coal mine.

History.—Central India is simply the name given to a group of states placed under the charge of the Agent to the Governor-General. After the Pindari or third Maratha War, when the Peshwa was dethroned and his claims of suzerainty passed to the British, the pacification of Central India was entrusted to Sir John Malcolm. His policy was to recognize all existing rights of the chiefs to territory and tribute, and to place them under the guarantee of the British Government. This explains why the geography of Central India is so confused, why some states are scattered about in detached portions, and why some of the larger states receive tribute from the smaller ones. Central India contains some one hundred and forty-three states, of which Gwalior, Indore, and Bhopal in the western half, and Panna and Rewa in the eastern half, are the largest. The states are grouped into agencies, the chief of which are Gwalior, Indore, Bhopal, and Western Malwa in the west, and Bagelkhand and Bandelkhand in the east.

HAIDARABAD.

Haidarabad is the heart of the Deccan.

Shape.—Haidarabad is, roughly, shaped like a diamond *plus* a triangle in the south-west corner.

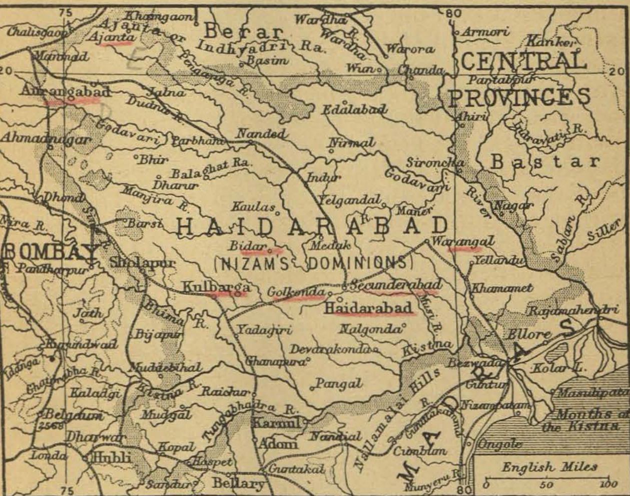
Boundaries.—The boundaries of Haidarabad can be best understood by studying carefully the course of the Godavari and Kistna and their tributaries. The state lies between the Godavari and its big left-bank tributaries on the one side, and the Kistna and its big right-bank tributary on the other.

In the *north* the Painganga separates the state from Berar. In the *north-east* the line of the Pranhita-Godavari separates the state from the Central Provinces. In the *south* the line of the

Tungabhadra-Kistna and the Eastern Ghats separate the state from Madras. In the *west* the state is bounded by Bombay.

Points for the eye to remember.—The courses of the Godavari and Kistna, and the points where their big tributaries join them.

Physical Aspects.—Haidarabad is a table-land averaging about 1,250 feet above sea-level, and sloping nearly north-west to south-east in the direction of the flow of the rivers. The table-land is made up of plains crossed by river valleys, with ranges of hills here and there.



Bartholomew, Edin^r

From north to south the state may be thus divided: (1) the upper valley of the Godavari, between the Painganga and Godavari; (2) the Manjira valley; (3) the tract between the Manjira and Bhima-Kistna; (4) the doab between the Bhima and Kistna; (5) the Raichur doab, between the Kistna and the Tungabhadra.

Mountains.—The Balghat Range runs between the Godavari and its feeder, the Manjira.

Rivers.—The Godavari and Kistna and some of their tributaries. The GODAVARI enters Haidarabad at the most westerly point of the "diamond," and flows eastwards across the northern half of the state. Feeders: the DUDNA, PURNA, and PRANHITA

on left bank; the MANJIRA on the right. The PAINGANGA, a feeder of the Wardha, forms the boundary, for some distance, between Haidarabad and Berar. The KISTNA, with its left-bank feeder the BHIMA and its right-bank feeder the TUNGABHADRA, occupies the triangle on the south-west corner of the state outside the "diamond."

Rainfall.—Haidarabad has a fair rainfall of about 30 or 40 inches, most of which falls in the summer monsoon. The numerous rivers naturally irrigate a large part of the state, and their valleys are well cultivated. There are also many tanks, but there are no canals.

Productions.—On the whole Haidarabad is not a very fertile country; it has too little rain, and but little artificial irrigation. Its cold weather produces some *wheat; rice* is grown in the river valleys and under tanks; *millets, ragi, oil-seeds*, and *indigo* on the drier soils. Its chief crop for exportation is *cotton;* there are large tracts of black cotton soil, and Haidarabad comes next to Bombay and Berar for cotton crops.

Race, Language, and Religion.—The people are mostly *Dravidians*, and almost all *Hindus*, speaking *Marathi, Kanarese*, and *Telugu*. The state is not very fertile, and therefore the population is thin.

Towns.—The history of Haidarabad is seen in its towns and villages. It is the part of India where the influence of settled government has always been least felt. The state itself became independent of the Moghal Empire, and in its territories are remains of several old independent kingdoms. It is the country where the Mohammedans and Marathas fought for supremacy, and where the Pindari bands roamed and robbed. The marks of former anarchy are to be seen everywhere. Almost every town is an old independent capital, and all are protected by walls or fortresses. Even the villages have usually small forts, to which, in troubled times, the inhabitants could retire and defend themselves. There are no great centres of modern industry.

Haidarabad (448), the capital, the fourth most populous city in India, stands on the Musi, a tributary of the Kistna, 2,000 feet above sea-level. It is a good example of an old-fashioned capital, with its palace and mosques, surrounded by a wall, and inhabited by a mixed population dependent for its livelihood on the expenditure of the court. "Perhaps there is no city in India with a population so varied or so war-

like. Every man goes about armed with a weapon of some kind, while the military classes are literally armed to the teeth. Here may be seen the Arab, the Sidi, the Rohilla, the Pathan, the Maratha, the Turk, the Sikh, Persians, Bokhariots, Parsis, Madrasis, and others." Visitors to the city are provided with an escort when passing through the streets.

In recent years the condition of Haidarabad has much improved. The Nizam has been helped by a succession of able ministers; the Afghan police keep order in the city; large shops have been built in the bazaars; and the children, both boys and girls, are being educated. In a few years Haidarabad city will compare with Madras or Bombay.

Secunderabad, six miles off, is the largest military cantonment in India; the troops keep the lawless rabble of the capital in awe.

Golconda, seven miles to the west, is an old capital, formerly famous for its trade in diamonds.

Kulbarga, farther west, and **Bidar**, to the north-west, are old Brahmini capitals. **Aurangabad**, in the north-west corner, is the old capital of Malik Ambar. Near it is **Daulatabad**, or Deogarh, an ancient Hindu stronghold. **Warangal**, to the east of Haidarabad, was the capital of the ancient Hindu kingdom of Telingana. These are all typical towns of the Deccan. In the north-west corner of the state two villages, **Ellora** and **Ajanta**, are famous for rock-cut temples of Jain and Buddhist art. Near them lies **Assaye**, where, in 1803, General Wellesley (afterwards the Duke of Wellington) defeated the Marathas.

History.—The dynasty of the Nizam and the kingdom of Haidarabad were both established by Asaf Jah, a Turkoman general of the Moghal emperor Aurangzeb. In 1713 he was appointed Subadar or Governor of the Deccan, with the title of Nizam-ul-Mulk (Regulator of the State). As the Moghal Empire, after the death of Aurangzeb, was, owing to internal quarrels and the attacks of the Marathas, tottering to its fall, Asaf Jah easily asserted his independence, and at the time of his death, in 1748, he was firmly established in it, with a kingdom roughly the same as the present state. The title of Nizam has become hereditary in his family. The relations of the state with the British Government are regulated by a series of treaties, of which the first was made in 1759, and the last in 1902.

MYSORE.

Mysore is a table-land, the southernmost and highest part of the Deccan, wedged in between the converging Eastern and Western Ghats.

Shape.—Mysore is roughly triangular in shape, with its vertex pointing south.

Boundaries.—It is surrounded on all sides by the Madras Presidency, except on the north-west, where it is bounded by the Bombay Presidency. For 70 miles on the south-west it touches the small province of Coorg.

Physical Aspects, Mountains, Rivers, etc.—Mysore is an undulating table-land, over 2,000 feet above sea-level, and flanked east and west by the ranges of the Eastern and Western Ghats, which send down spurs on either side. It is famous for high hills called "droogs," rising singly above the level of the table-land. These were formerly the favourite spots on which forts were built.

Water-parting.—Running east and west across the state is a high ridge (3,000 feet) which divides the drainage of the country, one half going north into the Kistna and North Pennar, and the other south into the Kavari.

Malnad and Maidan.—The people of Mysore also divide their country into the high rugged uplands of the Western Ghats (the Malnad), and the undulating and more level plains stretching eastward (the Maidan).

Rivers.—From the high land of Mysore rivers flow in nearly all directions, except to the westward, where the high barrier of the Western Ghats prevents them.

Northward.—The TUNGA and BHADRA (forming the Tungabhadra) and the VEDAVATI into the Kistna. The NORTH PENNAR.
Eastward.—The PALAR and SOUTH PENNAR.
Southward.—The KAVARI and its feeders.

Rainfall, Waterways, and Productions.—In the Western Ghats the rainfall is very heavy, but in the Maidan it is only moderate—about 30 inches. Mysore is, however, well supplied with rivers, and tanks are numerous. The Kavari is used to irrigate a great tract of rich country, and has many anicuts across it.

Productions.—*Millets* (especially *ragi*), *oil-seeds*, *areca* and *cocoa-nut palms*, and *sandal-wood* all over the Maidan; *sugar-cane* and *rice* in the irrigated valleys; *cotton* in the

black soil of the north; *coffee*, *cinchona* (a little), *teak*, and *cardamoms* on the Ghats.

Note.—*Ragi* is the great crop of Mysore, and is the staple food of the people. It is a hardy plant, not requiring much rain, and growing nearly everywhere. *Coffee* is said to have been first planted on the Baba Budan spur of the Western Ghats by a Mohammedan pilgrim who brought the seed from Mecca.

Race, Language, and Religion.—The people of Mysore are *Dravidians* in race, but there is a mixture of Scythian blood among the inhabitants of the western districts. The percentage of *Hindus* (92) is higher than that of any province or state in India. *Kanarese* is the language of the state.

Towns.—**Bangalore** (159), in the south-east, at a height of 3,100 feet above sea-level, is the only city in the province. At the present day it is chiefly noted as an important military cantonment, and the headquarters of the Mysore Government. A kind of granite is quarried in abundance in the neighbourhood, and, in consequence, some of the public and private buildings, notably the Maharajah's palace, are very fine structures. Owing to its elevation, and its exposure to both monsoons, Bangalore has one of the pleasantest climates in India. It is a place of considerable trade, with cotton and woollen mills, and carpet manufactures. The old fort, rebuilt by Hyder Ali, was stormed by Cornwallis in 1791. The cantonment is British territory.

Mysore, the capital of the state, some 100 miles south-west of Bangalore, but not so high, with a fort and palace, is a much smaller town with some good modern buildings. Like Bangalore, it has in recent years suffered much from plague.

Seringapatam, on an island in the Kavari, ten miles from Mysore, is famous as the old stronghold of Hyder Ali and of his son Tippu, who fell in the breach at the capture of the fort in 1799.

Kolar, on a branch of the railway from Madras to Bangalore, is celebrated throughout India for its gold mines, worked by European capital, which, during the five years 1900–1904, produced gold to the value of over fifteen crores of rupees. The rock containing the gold is crushed by machinery driven by electricity, which is generated by the Sivasamudram Falls of the Kavari, nearly 100 miles distant, and is conveyed to the mines by wires.

History.—The present ruling family of Mysore traces its

descent from a Hindu chieftain, the Wodeyar of Mysore, who rose to power early in the seventeenth century. From about 1760 to 1799 Mysore was ruled by a Mohammedan usurper, Hyder Ali and his son Tippu. On the latter's death at the capture of Seringapatam in 1799, the British Government restored the Hindu dynasty. In 1831, owing to the misgovernment of the Maharajah, the administration of the state was taken over by the British, and for fifty years it remained in their hands. In 1881 it was handed back to the adopted son of the former Maharajah, subject to certain conditions.

BARODA.

Baroda is a native state in Gujarat, in Bombay Presidency. The state consists of four distinct blocks called *prants*, separated from one another by large tracts of British or other territory. The state is well governed under the present enlightened Gaekwar, and has made much progress in railway extension and education. In a small part of Baroda State the experiment of compulsory education of boys and girls has been tried, no fees being charged, and attendance at school being enforced by means of fines. This is the only part of India where such an experiment has been made.

Chief Town.—Baroda. (See under Bombay Presidency.)

History.—Early in the eighteenth century a Maratha soldier of fortune, whose family name was Gaekwar or "Cowherd," rose to power. When the Moghal Empire fell to pieces, his descendants extended their authority over all Gujarat. The territories of the Gaekwar of Baroda at the present day cover part of the fertile plain of Gujarat, and are much intermixed with surrounding British districts. The Gaekwar is bound by subsidiary treaties to the British Government.

FRONTIER INDIA.

Introductory.—The north-west part of Frontier India is far the most important, as it is the only side on which India is threatened with invasion. The best way to remember it is to think of the north-west boundary of India from the Arabian Sea to the Hindu Kush, *not as a line, but as a belt* of territory,

outside of India proper, which the Indian Government has

protection of India against invasion. By this means three important objects are gained:—(1) Troops are concentrated at certain important points commanding the passes; (2) the tribes are not interfered with except when interference is necessary, and they are trained to defend their country; (3) the traffic in arms and ammunition across the frontier is regulated.

In 1904 the Viceroy of India, Lord Curzon, said: "India is like a fortress, with the sea as a moat on two sides, and mountains [the Himalayas and their offshoots] on the third. Beyond the walls is a glacis [Frontier India] of varying breadth and dimensions. We do not want to occupy it, but we cannot afford to see it occupied by a foe. We are quite content that it should remain in the hands of allies and friends; but if unfriendly influences creep up and lodge under our walls, we are compelled to intervene, because danger would thereby grow up and menace our security."

BALUCHISTAN.

Baluchistan is a large province, outside of India proper, lying west of the lower half of the Indus.

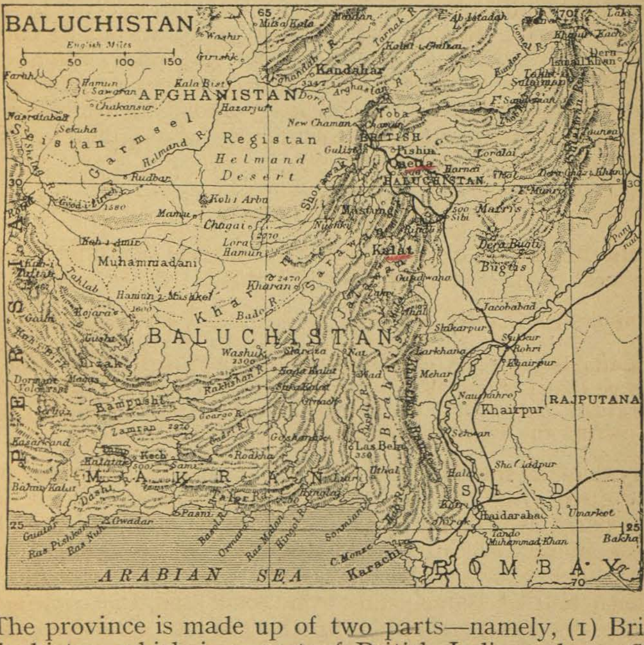
Shape.—Its shape is irregular, and can only be learned from the map.

Boundaries.—*N.* Afghanistan and the North-West Frontier Province (from which it is separated by the Gomal). *W.* Persia. *S.* Arabian Sea. *E.* The Punjab (across the Sulaimans), and Sind (across the Khirthar Mountains).

Physical Aspects.—Baluchistan forms an eastern part of the great *Iranian table-land.* It is very mountainous, and those parts which are not mountainous are desert. The highest mountains are round the two towns, Quetta and Kalat. The *Khirthar Mountains*, on the east, separate the southern half of Baluchistan from Sind, and the *Sulaimans* separate the northern half from the Punjab. Between these two ranges is the *Kachhi*, or desert, which stretches from the Indus valley into the heart of the country, and cuts it nearly in two. The only rivers of any importance are the *Zob*, which flows into the Gomal in the north, and the *Puriali*, which enters the sea less than 50 miles from Karachi.

Climate and Productions.—Baluchistan, being outside the influence of the monsoons, is nearly rainless. A large part

of it is desert, and cultivation is carried on by irrigation. (The water is conveyed in underground channels.) Wheat, millets, and the date fruit, none of which require much moisture, are the chief crops. The population is, of course, very thin, and though Baluchistan is the fourth largest province of the Indian Empire, it has only five lakhs of inhabitants—less than the population of Madras city. The people of Baluchistan have a proverb, "When God made the world He left the rubbish in Baluchistan."



The province is made up of two parts—namely, (1) British Baluchistan, which is a part of British India under a Chief Commissioner, and comprises certain districts ceded by Afghanistan by the treaty of Gandamak in 1879; (2) Native Baluchistan, the larger part, most of which belongs to the Khan of Kalat, but certain parts—for example, the Bolan Pass and the Northern Frontier—are directly administered by the Indian Government.

Towns.—With such a sparse population there can be only a few towns.

Quetta, 5,500 feet above sea-level, in a valley among high mountains, is the chief station of British Baluchistan. Its importance is altogether due to its position as a frontier garrison post. It guards the northern or Afghan entrance to the Bolan Pass, which leads into the Indus valley. It is therefore very strongly fortified, and is connected with the Indus valley railway by two lines—one through the Bolan Pass, and the other through the Nari Pass—which meet at Sibi. This line has been carried beyond Quetta to Chaman on the Afghan frontier, overlooking the plains of Kandahar. Quetta is also a place of some trade, being the starting-place of caravan routes to Kandahar and the Seistan district of Afghanistan. Along this latter route a railway line has been made over the mountains as far as Nushki, in northern Baluchistan.

Kalat (6,500 feet), nearly 100 miles south of Quetta, is the fortress of the Khan of Kalat, the head of the Baluchi clans.

THE NORTH-WEST FRONTIER PROVINCE.

Shape and Position.—The North-West Frontier Province consists of a long strip of mountainous country, about 100 miles broad, stretching to the west of that part of the Indus which lies between its bend at Nanga Parbat and Dera Ismail Khan. There is also a narrow strip, the Hazara district, lying to the east of the Indus and north of Rawal Pindi.

Boundaries.—*E.* Kashmir and the Punjab. *N.* and *W.* Afghanistan. *S.* Baluchistan and the Punjab.

Physical Aspects.—The whole country is a mass of mountains. The rivers are the keys to the geography of the province. They form the valleys which are the only means of communication through the country. Up these valleys trade routes and military roads lead over the passes which separate the province from Afghanistan. There are four main rivers, all tributaries of the Indus.

1. **The Kabul River** flows from Kabul, the capital of Afghanistan, to join the Indus at Attock. The road does not follow the river valley all the way, and is called, not the Kabul route, but the Khaibar route, from the Khaibar Pass through which it goes. The principal town on the route is Peshawar.

Flowing south from the Hindu Kush and its spurs, three feeders join the Kabul River—the **Chitral** or **Kunar River,** the **Panjkora,** and the **Swat.** Bridges have recently been built across the Panjkora and the Swat, and a road is now opened up across them to Chitral, a northern frontier post in the Chitral valley.

2. The **Kuram** rises in Afghanistan. At the head of its valley are the Kuram and Shutargardan passes, leading across the Safed Koh Range. Kohat stands at the base of the valley.

3. The **Tochi,** rising in the Waziristan Mountains (a part of the Sulaïmans), joins the Kuram. The valley is fairly cultivated, but is not much used as a trade route. The chief town on the route is Bannu (Edwardesabad).

4. The **Gomal** rises in Afghanistan, forms part of the boundary between Baluchistan and the province, and enters the Indus near Dera Ismail Khan. The Gomal valley is one of the most frequented routes between India and Afghanistan.

Mountains.—North of the Kabul River is the **Hindu Kush Range,** with its spurs running southward and separating the valleys of the Kunar, Panjkora, and Swat. South of the Kabul River is the lofty **Safed Koh Range,** and the **Waziristan Mountains.**

Rainfall and Productions.—The whole of the province being out of the path of the monsoons, the rainfall is very light, and there is little vegetation or cultivation except in the valleys.

Towns.—The towns of the province are either military posts or centres of transit trade routes.

Peshawar, a large town of over 80,000 inhabitants, owes its importance to its position. It lies on the main route to Kabul, and is thus important both as a military centre and as the starting-place for caravans across the frontier. It is now joined by railway to the Punjab system, and is a place of large trade.

Kohat, commanding the Kuram valley, **Bannu,** commanding the Tochi valley, and **Dera Ismail Khan,** on the Indus where it is joined by the Gomal, are all important on account of their position as frontier posts. **Chitral,** far north in the Chitral valley, and **Dir,** half-way to it, are small towns, but important as military posts in the case of war.

History.—The North-West Frontier Province was formed

in 1901. It comprises—(1) the Hazara district; (2) certain districts west of the Indus which up till then belonged to the Punjab; (3) the frontier agencies of Dir, Swat, and Chitral, north of the Kabul River, and the Khaibar, Kuram, Tochi, and Wana agencies, south of it. These were all placed under a Chief Commissioner, who is directly responsible to the Government of India. In this way the Government of India has immediate control over all frontier relations, instead of having, as formerly, to deal with them only through the Punjab Government. The North-West Frontier Province includes all the country of the *Pathans*, a lawless race of Mohammedans, who are now being trained by British officers to become the defenders of their mountains, and the guardians of the passes that lead into India.

KASHMIR.

Kashmir is a part of Frontier India, but its frontier does not touch any country from which real danger to India can be feared. It is simply a native state under British suzerainty, just like any other.

Shape.—Kashmir is like a rough square fitted on to the northern boundary of the Punjab.

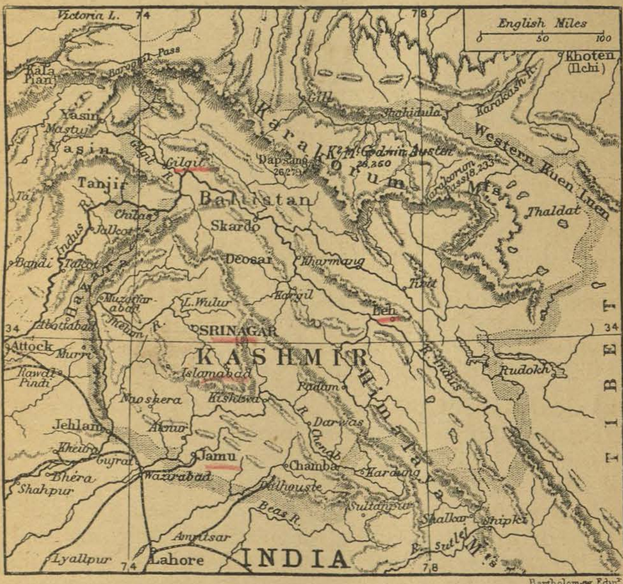
Boundaries.—*N.* Chinese Turkestan. *E.* Tibet. *S.* The Punjab. *W.* The North-West Frontier Province.

Physical Aspects.—Kashmir is made up of a mass of snow-covered mountains with many narrow valleys and one broad one—the valley of Kashmir. It is divided into two nearly equal parts by the Indus and Gilgit valleys, which meet and form a straight line, cutting across the country from south-east to north-west. All to the north of this line makes up Trans-Himalayan Kashmir; the part to the south is Himalayan Kashmir.

Trans-Himalayan Kashmir is a mass of mountains, and, except in the valley of the Shayok, it is all over 12,000 feet above sea-level. These mountains run from north-west to south-east in three roughly parallel ranges—first the Kailas or Gangri Range, then the Karakorams, and, forming the northern boundary, the Hindu Kush and the southern slope of the Kuen Luens. In no country in the world are there such magnificent masses of snow-covered mountains. The giants of the Alps would here look like dwarfs. The Karakoram Pass, leading into Eastern Turkestan, is over 18,000 feet high;

and the loftiest peak of this range, Mount Godwin Austen (named after the man who first measured it), ranks in height next to Mount Everest.

Himalayan Kashmir is also filled with snow-covered mountains and ice-fields. Just south of the Indus is the main or inner Himalayan Range, ending in Nanga Parbat (26,000 feet). Farther south is the outer Himalayan Range, here called the Pir Panjal, and between these two ranges lies the



KASHMIR.

beautiful valley of Kashmir, studded with small lakes and watered by the Jehlam, on which stands Srinagar. Still farther south are the outermost or sub-Himalayan Ranges, through which the Jehlam and Chenab and their tributaries cut their way into the Punjab plains.

Rivers.—These all flow first north-west, following the line of the mountains, and then bend south-west where they find an opening through them.

The INDUS flows north-west through Kashmir up to its bend round Nanga Parbat. The SHAYOK joins it on the right bank, near the middle point of Kashmir. The GILGIT from the north-west, with its tributary the Hunza, meets it at the bend.

The JEHLAM flows first north-west through the Kashmir valley, and then turns sharply south and forms part of the boundary between Kashmir and the Punjab.

The CHENAB flows north-west from the Punjab Himalayas, and then turns south-west to the Punjab plains.

Lakes.—There are many small lakes in Kashmir, both among the mountains and in the valleys. The most important are the WULUR and DAL lakes in the Kashmir valley. Lake Wulur is the largest fresh-water lake in India.

Valleys.—The Indus and Gilgit form a long valley intersecting the country, but the most important is the **Kashmir Valley,** watered by the Jehlam and its canals. It is the only large extent of flat country in the state, and its situation among the snow-clad mountains makes it one of the most beautiful regions of the world. It is about 80 miles long by 20 miles broad, and it lies over 5,000 feet above sea-level.

Climate and Productions.—Owing to its height and the presence of masses of snow-covered mountains, the climate of Kashmir is never very hot, and from October to April it is very cold. In winter the lakes in the Kashmir valley are partly frozen. The outer range of the Himalayas shuts out the monsoon, and, in consequence, the rainfall is very light. The chief crops are wheat, barley, millets, and pulses, which can thrive without much rain. The Kashmir valley is famous for fruits, such as apples, peaches, and grapes, which grow in Europe. Tea, cinchona, and hops are also cultivated.

Race, Language, and Religion.—The Kashmiris are of a nearly pure *Aryan race*, but there is a slight admixture of Mongolian blood on the frontier next Tibet. *Mohammedans* make up about three-fourths of the population. The Hindus of Kashmir live in the hills, and are called *Dogras*. The people speak very mixed *Aryan dialects*. Owing to the mountainous nature of Kashmir and the want of rain in its trans-Himalayan part, the *population* is extremely *sparse*. Very few of the people live in towns.

Towns.—The towns in Kashmir are, except Srinagar and Jammu, small. and are either centres of trade routes or frontier stations.

Srinagar (123), on the Jehlam, in the Kashmir valley, was in old days the hot weather residence of the Moghal emperors. The city, made up of quaint wooden houses surrounding the palace and fort, and stretching along the river banks beside the Dal Lake, in the centre of an amphitheatre of snow-clad mountains, is extremely picturesque. Its former manufactures of shawls and carpets are now much decayed, but a silk factory employing 6,000 persons has been established, and copper-work is still carried on. The commercial importance of Srinagar is due to its being the centre of trade routes to the Punjab, on the one hand, and northern Kashmir and Tibet on the other.

Jammu, on the southern border, at the foot of the outmost Himalayas, on a tributary of the Chenab, is connected by a line through Sialkot with the Punjab railway system. It is the only point in Kashmir yet reached by a railway.

Leh, in Ladakh district, in the Indus valley, is the starting-point of a trade route to Eastern Turkestan across the Karakoram Pass. Leh (11,000 feet above sea-level) is one of the highest inhabited places in India, and, as it lies behind the Himalayas, and is untouched by the monsoon, it is nearly rainless.

Islamabad, in the Kashmir valley, is the limit of boat navigation on the Jehlam.

Gilgit, in the Gilgit valley, is a frontier station nearly 5,000 feet above sea-level, commanding the passes to the north over the Hindu Kush.

History.—Kashmir has given its name to a large state of which the Kashmir valley is but a small part. The state includes Jammu in the south, Ladakh in the east, Baltistan in the north, and Gilgit in the north-west, along the Gilgit valley.

Kashmir proper was conquered from the Afghans in 1819 by Ranjit Singh, the Sikh ruler of the Punjab. The government of the country was given to Gholab Singh, a Dogra Rajput, who conquered and annexed the Tibetan province of Ladakh. In 1846, after the first Sikh War, the British confirmed Gholab Singh in his possessions, in return for a payment in money; and he signed a subsidiary treaty by which he agreed to present annually one horse, twelve goats, and three pairs of shawls in token of his recognition of British supremacy.



NEPAL, BHUTAN, AND SIKKIM.

Nepal and **Bhutan** are independent states, and so should, strictly speaking, not be included in the Indian Empire; but they are under engagements with the Indian Government, and are practically under its protection against the invasion of any foreign power. Nepal has a British Resident at the capital, but he does not interfere with the internal affairs of the state. Bhutan receives an annual subsidy of half a lakh of rupees from the Indian Government.

Nepal is a long strip of mountainous country, including the main and outer Himalayan Ranges. Its area is about 54,000 square miles.

Boundaries.—*N*. Tibet. *W*. The United Provinces. *E*. Bengal and Sikkim. *S*. The United Provinces and Bengal.

Physical Aspects.—Nepal is a country of mountains and deep valleys, intersected by rivers flowing down to the Ganges plain.

Mountains.—The HIMALAYAS in Nepal are very massive and high. Dhaulagiri (26,800 feet) in the western, and Everest (29,002 feet) in the eastern half, are the highest peaks. Along the

foot of the Himalayas stretches the *Tarai*, a feverish jungly valley, cultivated in parts, and the best hunting ground in India for big game.

Rivers.—Three rivers drain the valleys into the Ganges:—(1) The GOGRA, with its feeders the Kali and Kornali, in the west; (2) the GANDAK, with two feeders of the same name, in the middle; and (3) the KOSI, in the east.

Climate and Productions.—There is a heavy rainfall, but only the lower valleys are cultivated, rice, millets, tobacco, and oil-seeds being the chief crops. Sal and sisu are the principal timber trees; it is too cold for teak.

Industries and Trade.—There are no industries in Nepal, but its trade with India has lately much increased. Nepal sends to Bengal grain, pulses, and oil-seeds, some jute and sabai grass (used for paper-making); and takes, in return, cotton goods, metals (brass, copper, and iron), salt, and sugar.

Towns.—The population of Nepal is supposed to number only about three millions. **Khatmandu,** the capital, lies in a valley, 4,500 feet high, among the mountains near the centre. Little is known about it. "We do not even yet know, for a certainty, which is the best route to the capital."

History.—Very little is known about Nepal, as no stranger is allowed to explore the country, and the Resident at Khatmandu is the only European permitted to enter it. Since the Nepalese War (1815–1818), when the Nepalese lost their best provinces of Gharwal and Kumaon, now part of the United Provinces, there has been very little intercourse with the country. But both rulers and people are friendly to the British, and arrangements are made every year by which a certain number of Nepalese (Gurkhas) are recruited for the Indian army. These are among the finest soldiers India possesses.

Bhutan, like Nepal, lies among the ranges of the Himalayas, but it is much smaller, and it does not include the forest-clad tract (the Dwars) below the hills. Its area is about 16,800 square miles.

Boundaries.—*N*. Tibet. *W*. Bengal (Sikkim). *S*. The province of Eastern Bengal and Assam. *E*. The country of unsettled hill tribes.

Physical Aspects.—The Himalayas fill up most of the country. *Chumulari Peak* (24,000 feet) lies in the north-west.

Among the ranges are numerous valleys, where alone cultivation is carried on. The drainage of these valleys flows through the Dwars into the Brahmaputra by several rivers, of which the *Manas* is the largest.

Trade.—Bhutan trades with Tibet rather than with India. The value of its trade with India for a whole year does not equal that of a single ship's cargo. It sends a little wool and wax, and some ponies, and takes cotton goods, salt, and tobacco.

Town.—Capital, **Panakha,** about which little is known.

History.—Bhutan is an unknown and unexplored country. In 1865 an expedition was sent to punish the Bhutanese. The Dwars, a tract of densely forest-clad plains, about fifty miles broad, was taken from Bhutan, and now forms part of the province of Eastern Assam and Bengal. Two military posts, Buxa and Dewangiri, at the foot of the Himalayas, are held by Indian troops. Once a year a chief comes to Buxa to receive the subsidy paid by the Indian Government, and Bhutan is left alone.

In 1905 a peaceful mission was sent to Panakha, and a better idea of the geography of the country was obtained. The scenery is described as the most magnificent in the world. One of the Himalayan peaks, Kulha Kangri, rises to 24,700 feet, and there are great valleys and stupendous gorges. The Lamas, or Buddhist priests, were found to be most hospitable, receiving the mission in their jongs, or fort-monasteries, among the mountains. The people were found to be skilful in wood-carving and metal-work.

Sikkim.—Between Nepal and Bhutan lies the protected state of Sikkim. Since 1890, when an expedition was sent by the Government of India to expel Tibetan invaders from the country, the government of the state has been under a British Political Officer appointed by the Bengal Government. In 1890 Great Britain and China signed a treaty settling the boundary between Tibet and Sikkim, and acknowledging the British Protectorate over Sikkim. The state is small, and has a population of little more than half a lakh, but it is important, because here the territory of a protected state touches Tibet. The valley of *Chumbi* (belonging to Tibet) lies between Sikkim and Bhutan, and through this passes what little trade there is between India and Tibet.

THE ASSAM BORDER TRIBES.

The Assam Border Tribes and Manipur.—The Himalayan country to the east of Bhutan and lying north of Assam is occupied by a number of unsettled tribes, of which the Akas, the Abors, and the Nagas are the chief. They are really independent, and so, strictly speaking, are not within the limits of the British Empire; but the Indian Government takes responsibility for them (1) by sending expeditions among them, when necessary, to keep them in check; (2) by protecting them against foreign invasion.

The country of the *Lushai tribes*, in the south-eastern corner of Assam, is now British territory, and forms a district under the Chief Commissioner of Eastern Bengal and Assam.

Manipur.—Since 1891, when the Manipuris murdered the Chief Commissioner of Assam, the state has been under British protection. A force of frontier police keeps the lawless people in check.

BURMA.

Geographical Position.—Burma is the northern part of the Indo-Chinese Peninsula, and comprises the territory lying between lines XS, SM on diagram, p. 10, and the Bay of Bengal, *plus* a long strip of coast running south to Cape Victoria.

Relief.—Burma comprises all the country enclosed by the eastern offshoots of the Himalayas and the sea. In the northern part it consists of *masses of mountains*; towards the south these mountains open out into separate ranges enclosing *river valleys*; and all along the sea-board is a flat *coast-strip*.

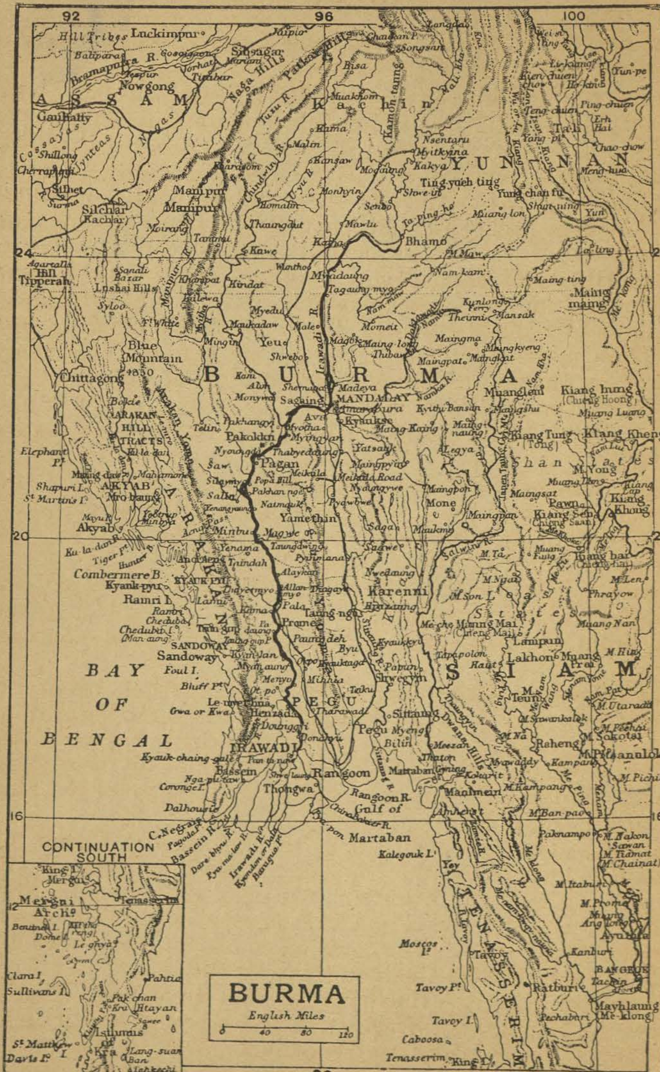
Physical Features: Mountains.

The Patkais, Lushai Hills, and Arakan Yomas.—Starting from our point S, a mass of mountains runs roughly along SX towards Chittagong, and then narrows into a long range till it ends in the rocky headland of Cape Negrais.

The northern half of this mass divides Burma from India proper (Assam). Here it is known as the PATKAI MOUNTAINS, and a little farther south as the LUSHAI HILLS. After it narrows into the long single range it is called the ARAKAN YOMAS.* BLUE

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* *Yoma* in Burmese means a ridge like a *bone*, and the Yomas are the skeleton of Burma.


BURMA
English Miles
40
80
120
92
96
100
24
20
16
CONTINUATION SOUTH
BAY OF BENGAL
Gulf of Martaban
ASSAM
YUNNAN
BURMA
SIAM
Shan States
PEGU
IRAWADI
ARAKAN HILL TRACTS
AKYAB
SANDOWAY
KYAUK PHU
Karenni
Luckimpur
Nowgong
Gauhatty
Shillong
Cherrapunji
Silhet
Silchar (Kachar)
Manipur
Hill Tipperah
Lushai Hills
Chittagong
Blue Mountain
Akyab
Combermere B.
Kyauk-pyu
Ramri I.
Cheduba I.
Sandoway
Foul I.
Bluff Pt.
Bassein
Rangoon
Thongwa
Dalhousie
Henzada
Prome
Thayetmyo
Minbu
Pagan
Pakokku
Sagaing
MANDALAY
Ava
Amarapura
Kyaukse
Yamethin
Meiktila
Myingyan
Shwebo
Yeu
Kindat
Mogaung
Myitkyina
Bhamo
Katha
Tagaung
Theinni
Maingpan
Moné
Kiang Tung
Kiang Hung
Kiang Kheng
Kiang Sen
Chieng Mai
Lampun
Lakhon
Raheng
Pitsanulok
Moulmein
Amherst
Martaban
Thaton
Sittang
Toungoo
Pegu
Tavoy
Tavoy I.
Kalegouk I.
Moscos Is.
Caboosa
Tenasserim
King I.
Ratburi
Mayhlaung (Me-klong)
Ayuthia
BANGKOK
Mergui
Mergui Archo.
Isthmus
Kra
St. Matthew I.
Sullivans I.
Clara I.
Tali
Teng-chueh
Yung chang fu
Yun-pe
Ping-chuen
Chao-chow
Tingyueh ting

MOUNTAIN, where Burma, Assam, and Eastern Bengal meet, is the highest peak, 7,100 feet above sea-level.

Burma is thus shut off from India (Assam) on the north-west by a mass of densely forest-clad mountains, running in steep and high ridges intersected by deep and narrow valleys, and inhabited by wild tribes. These mountains form a barrier which has kept the peoples of the two countries separate in race, language, religion, and customs. Across the Arakan Yomas is the AN PASS, 5,000 feet above sea-level.

Shan Hills and Tenasserim Yomas.—Starting again from our point S, another mass of mountains runs at first almost due south in parallel ranges. These become broken up and form large table-lands, and then thin off into a single range which runs down the Malay Peninsula till it ends in Cape Victoria. The northern half of this mass is the SHAN HILLS, and the long range in the south is the TENASSERIM YOMAS.

Pegu Yomas.—Between these two great ranges of the Arakan and Tenasserim Yomas, and dividing the lower valleys of the Irawadi and Sitang rivers, is a smaller, shorter, and lower range called the PEGU YOMAS.

Rivers.—The rivers of Burma are the key to its physical geography. There are three main rivers, all of which flow nearly from north to south, following the line of the mountain ranges.

The Irawadi: Drainage.—The Irawadi with its tributaries drains nearly the whole of Burma. On its right bank it receives all the heavy rainfall of the southern slopes of the Patkais, Lushai Hills, and the eastern slopes of the Arakan Yomas; on the left bank it receives the drainage of the Shan Hills and Pegu Yomas.

Course.—The Irawadi rises in the unexplored Kachin hill country lying between the bend of the Brahmaputra and the Salwin. There two mountain streams, the N'maika from the north-east, and the N'malika from the north-west, join to form the main river. The general course of the Irawadi is nearly due south from the mountains to the sea.

Mountain Stage.—This may be said to extend from its sources to Myitkyina (*Mitchina*), some 50 miles south of the junction of the N'maika and N'malika. During this part of its course very little is known of the Irawadi or of the rugged mountainous country through which it flows.

Plain Stage.—From Myitkyina to Prome. During this stage the river flows through narrow but fertile valleys. Here the mountains are never far from the river, though they become lower as we near the sea. Thus the Irawadi plains cannot compare in extent with those of the Ganges or Indus.

Delta Stage.—At Henzada, not far below Prome, and when still 100 miles from the coast, the Irawadi reaches the flat plain of its delta and begins to give off distributaries, fourteen of which carry its waters into the Gulf of Martaban. Of these the western outlet is the **Bassein River,** up which steamers can come for 15 miles above Bassein harbour. The eastern outlet is the **Rangoon Channel,** on which Rangoon stands. This channel is deep enough to allow ocean steamers to come up to Rangoon harbour, and it gives a passage to flat-bottomed river steamers to the Irawadi in the rains.

Tributaries of the Irawadi.—As the Irawadi flows, for the most part, along narrow valleys hemmed in by hills, there is not much room for many large tributaries. Just about the centre of its course, however—that is, near Mandalay—the valleys are wider, and here, therefore, we find one or two large tributaries. On the left bank the MYIT-NGE* brings the drainage of the Shan Hills in the north-east. A little farther on, the Mu, a small feeder, enters it on the right bank; and still lower down, the CHINDWIN, its largest tributary, brings all the drainage of the southern slopes of the Patkai Mountains and Lushai Hills.

The Salwin, a much longer river than the Irawadi, is not nearly so important, because during nearly the whole of its course it flows through mountainous country. It is therefore a rushing, rapid river, with a rocky bed and many sharp turns, and it is only navigable near its mouth. It rises far to the north of the sources of the Irawadi in the unexplored part of Tibet, bends, in a narrow valley, past our point S, and then flows nearly due south in a deep trough among hills and table-lands till it enters the Gulf of Martaban at Maulmain. Owing to its being hemmed in by mountains which run parallel to it for a great part of its course, the Salwin has a comparatively narrow and small drainage area, and, in spite of its greater length, it usually carries less water to the sea than the Irawadi. Its mountain stage may be said to continue from its source to near its mouth. It is only navigable for a few miles up, and it has no delta.

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* *Myit* = "river," *nge* = "small."

The SITANG, which lies between the Irawadi and the Salwin, is a very much smaller river than either of them. It drains a low-lying region, between the Pegu Yomas on the west and the Shan Hills on the east, into the Gulf of Martaban. The Sitang valley is very fertile. It is also very flat, and thus gives the best approach by railway into the interior. The river itself is, however, not important, being blocked by sandbanks, and therefore useless for navigation.

The main rivers of Burma are thus very easy to understand. (1.) Owing to the run of the mountain ranges, they all flow nearly due south. (2.) They flow through narrow valleys, and so they have few tributaries (the Irawadi receives its chief feeders just south of Mandalay, where its valley is broadest). (3.) They flow through a country and from mountains which receive a great deal of rain, and so they never run dry, and are full and deep for many months of the year.

The Irawadi is, however, by far the most important of the rivers of Burma, because (1) though not the longest river, it has much the largest drainage area—the basin of the Irawadi takes up about three-fourths of the whole area of Burma; (2) it has valleys along its course, which the Salwin has not, and it spreads into a big delta, which the others do not; (3) it is navigable for three-fourths of its length (to beyond Bhamo, 800 miles from the sea), while the Sitang is choked with sandbanks, and the Salwin flows through rocky, impassable mountain gorges; (4) it flows through a fairly well civilized country, while the Salwin, though longer, flows through mountains, the home of wild tribes. It has several important towns and points of call on its banks, while the Salwin has only one—Maulmain—at its mouth.

Coast and Islands.—The coast of Burma from Cypress Point to Cape Victoria is more broken than that of India, and has numerous islands lying off it. It is naturally broken into two parts by the delta of the Irawadi and the Gulf of Martaban. The northern half, from Cypress Point to Cape Negrais, is the **Arakan Coast**; the southern half, from the mouth of the Salwin to Cape Victoria, is the **Tenasserim Coast.**

Cape Negrais, the end of the Arakan Yomas, is the only important promontory. It is important because it protects the Bassein channel of the Irawadi delta.

Islands.—Off the Arakan coast lie the volcanic islands of **Ramri** and **Cheduba,** with a few others little known. Extending from near Cape Negrais right down to near Achin

Head in Sumatra is a line of islands in *four groups*, which are supposed to be the tops of submarine mountains that stretch, as a continuation of the Arakan Yomas, to Sumatra. These groups in order are the **Preparis, Cocos, Andamans,** and **Nicobars.**

The Andamans are made up of four fairly large islands, the three largest together being 150 miles long. They are called the North, Middle, and South Andaman, with the Little Andaman farther south. The Nicobar group comprises some twenty islands, mostly very small. Off the Tenasserim coast of Burma lies the MERGUI ARCHIPELAGO, thinly inhabited and but little known.

Note.—(1) All these islands differ from the Laccadive and Maldive Islands, off the west coast of India and Ceylon, in not being of coral formation; (2) they are rather obstacles than aids to navigation; (3) the Andamans and Nicobars, though geographically belonging to Burma, are politically separate from it. They are under a Chief Commissioner of their own.

Regions of Burma.—From the relief and build of Burma we can divide it into three regions:—

1. **Region of Coast-strips**—that is, the flat, narrow alluvial tracts lying between the sea and the Arakan and Tenasserim Yomas. These strips resemble in general features the Malabar coast of India. They are too closely hemmed in by mountains to contain any large rivers. Their heavy rainfall makes them excellent rice land, and on the mountains teak flourishes.

2. **Region of Plains and Uplands**—that is, Central Burma, including the basin and delta of the Irawadi and the basin of the Sitang. This is the heart of Burma, made up of the mountain slopes and table-lands among which the Irawadi and its feeders rise, the plains down which they flow, and the rich delta land where their waters enter the sea. The climate is, in the northern part, owing to the elevation, more temperate than that of the coast-strip, and the whole region is one of the most fertile parts of the Indian Empire, capable of growing in abundance all the crops of the Tropical and sub-Tropical Zone. But much of this vast area, outside the lower courses of the Irawadi and Sitang, is little known, and most of it is quite undeveloped—that is, it is mostly covered with jungle and forest, which has to be cut down. There are few roads, and only a single line of railway through the southern part. The next fifty years will make a great difference to this part of Burma.

3. **Region of Table-lands**—that is, the Salwin basin or Shan States. This region is even less known than Central Burma. It is a land of elevated plateaus, separated by deep valleys and intersected by lofty forest-covered parallel ranges of hills running north and south. The general elevation of these table-lands (from 3,000 to 5,000 feet) is a little higher than that of Mysore, and some of the mountains rise to 9,000 feet. This region of Burma, owing to its elevation, has a temperate climate, and may become a great wheat-bearing district. At present it is very little cultivated by the wild tribes who inhabit it.

The Climate of Burma: the Rainfall.—Burma has three distinct areas of rainfall: (1) very wet; (2) dry; (3) wet.

1. *Very Wet Area.*—The coast-strip (made up of the Irawadi delta and the strips to the west of the Arakan and Tenasserim Yomas) receives the full force of the bay branch of the summer or south-west monsoon, just as the Western Ghats strip receives the full benefit of the Arabian Sea branch. The rainfall here is therefore heavy—over 150 inches.

2. *Dry Area.*—This part is the "Deccan" of Burma, lying east of the Arakan Yomas and west of the Shan Hills, and comprising the central districts of Upper Burma. It is protected from the south-west monsoon by the Arakan Yomas, and has often long breaks of rainless weather in the monsoon months. The rainfall, like that of the Indian Deccan, is only a little over 30 inches. This is the only part of Burma where famine ever occurs.

3. *Wet Area.*—The wet area of Burma is divided into two parts, one north of Central Burma, including the hilly tracts of Upper Burma (which feed the Irawadi), and the other to the south of Central Burma. This area stands, for rainfall, about half-way between the very wet and the dry areas, receiving about 64 inches, on an average, yearly.

Most of Burma lies in the Tropics, and the climate generally, except in the dry area, is hot and damp. On the hills to the north and east it is more temperate.

Productions.—The heavy rainfall of Burma is peculiarly suited to *rice*, which covers about five-sixths of the cultivated area, and is largely exported. In the uncultivated tracts, every kind of *timber* known in India (especially *teak*) grows wild in the forests, and the *rubber* tree in addition. In the dry area maize, millets, wheat, pulses, gingelly, onions, chillies,

tobacco, and cotton are grown to some extent. But Burma is not yet opened up. When the jungles are cut down and roads and railways are made, its productions will be vastly increased both in quantity and variety.

The People, Race, Language, and Religion.—Burma is the south-western corner of the great Mongolian region of the earth, and the Burmese are all Mongolians, with the exception of a very slight admixture of Dravidian blood from India. The reason why the people of Burma are so pure in race is that the country is shut off by mountains in the north-west, and by the Bay of Bengal in the west, from India. Owing to the vast inaccessible mountains and jungles which take up a great part of the country, Burma contains many wild tribes. Of these the **Shans,** who inhabit the great stretch of highlands on both sides of the Salwin, are the most numerous and most civilized. In the north, round the sources of the Irawadi and Chindwin, live the **Kachins.** In the south of the Salwin basin are the **Karens** (divided into Red and White Karens), a fighting race who have lately embraced Christianity in considerable numbers. Among the Shans live the **Kakhyens,** an uncivilized race of fetish worshippers (Animists) occupying the hill districts. The rest of the country is occupied by the **Burmese,** but there are also many **Chinese,** and **natives of India** are migrating into the country in great numbers.

The people of Burma speak languages of the Indo-Chinese family, of which *Burmese* is the chief. The religion of the great bulk of the population is *Buddhism*, but among the hill tribes (except the Shans) Animism prevails.

Burma is thinly populated. The reason of this is—(1) a great deal of the country is mountainous; (2) till recently there was no settled government, and the country was depopulated by wars. The uplands are thinly, and the plains, whether wet or dry, thickly populated. The increase of population is greatest in the very wet area of the coast-strips and delta, where the land is flatter and less jungly, and the soil is therefore productive. In modern times the population is rapidly increasing owing to immigration and settled government.

Political Divisions.—Burma is divided, for purposes of administration, into Lower and Upper Burma. Lower Burma comprises the coast-strips and the Irawadi delta, and Upper Burma the rest of the province.

Towns.—Burma is a country with *few towns*, and these are, unlike those of India, *almost all modern*. The reasons for the scarcity of towns are :—(1.) Burma, like India, is, and has always been, a country of agriculturists, with few industries like those which, in other countries, group people into towns and cities. (2.) Until quite modern times Burma was ruled by kings who were absolute, and there were no nobles or chiefs as there were in India. Therefore, outside of the king's capital, there were no courts of princes, or rajahs, which became the centres of populated cities, such as Lucknow, Madura, Haidarabad, Nagpur, or the capitals of the Rajputana states. (3.) The leisure-loving Burmese do not like town life. They prefer the easy-going life of the country, where a rich soil and plentiful rainfall give them an ample livelihood at the expense of little labour. Thus Burma is a country of villages and hamlets. Ninety-four per cent. of the inhabitants (leaving out of account Rangoon city, where the population is more than half foreigners) live in the country. Hence the few *towns of Burma are of recent growth*, and they all date from the occupation of the country by the British. This occupation has resulted in an immense increase in the trade of the province, and this is why we find the towns of Burma at the points where trade is most easily and quickly developed—namely, on the *coasts* or on the *rivers*. The towns of Burma are, in short, either seaports or river-ports. Even Mandalay, the former court capital of Upper Burma, is modern. In 1860 the site of the town was swamp and jungle.

Rangoon (235) is an excellent example of a modern town which has risen to importance owing to its being splendidly situated for trade. At the end of the eighteenth century it was a mere group of hovels collected round the Shwe-Dagon pagoda; and it was little better when, after the second Burmese War (1852), it formed part of the annexed part of Burma. But since 1852, when it came under British administration, its advance has been great and rapid. Its total foreign trade then was about two crores a year; it is now nearly twenty. Its population then was a quarter of a lakh; it is now two and a third lakhs. From an unimportant seaport, Rangoon has, in half a century, risen to be the third seaport of the Indian Empire, being beaten only by Calcutta and Bombay. Rangoon owes its importance almost entirely to its situation. It is the sea outlet for the great river basin of the Irawadi. Its

river gives anchorage to large ocean-going steamers, which export the rice, teak, and oil of Burma, and bring back in exchange the manufactures of Europe. About 90 per cent. of the foreign trade of Burma passes through Rangoon. In its geographical position, and its favourable situation for trade, Rangoon resembles Calcutta; but the advantage is, in almost every respect, with Calcutta.

Calcutta (1) is the sea-outlet for one of the largest, most fertile, and most densely populated regions of the Empire; (2) the Gangetic plain is intersected by two large rivers and many tributaries, and by many roads and railways; (3) the Gangetic plain leads into the civilized continent of India.

Rangoon (1) is the sea-outlet for a much smaller, narrower, and less thickly populated region; (2) the Irawadi plain is watered by a single river with few tributaries, and has few roads and only a single line of railway; (3) the Irawadi valley leads up to inaccessible, jungle-covered mountains, the homes of uncivilized tribes.

It is unlikely, therefore, that Calcutta can ever be equalled by Rangoon as a seaport; but we must remember (1) that the Irawadi basin is, as yet, only beginning to be opened up, and (2) that if the proposed railway from Mandalay to Kunlon Ferry, on the Salwin, is taken across the Mekong to Yunnan, Rangoon may, in the future, become the outlet for a great part of the rich trade of China.

Rangoon is the capital of Burma, and contains the chief Government offices and the Law Courts. As the Burmese prefer the easy life of the country, Rangoon is a great centre for immigration, and more than half its population consists of natives of India, Parsis, and Chinese, who are attracted to it by high pay and profits. The Shwe-Dagon pagoda, with its gold-gilt roof, is the most famous Buddhist temple in Burma. INSEIN (a suburb of Rangoon, farther up the river) is a growing place.

Mandalay (184), the only city in Burma except Rangoon, was the capital of the King of Upper Burma at the time of the third Burmese War. Mandalay is favoured by its position (1) in the broadest part of the Irawadi valley, where that is joined by the valleys of the chief tributaries of the river; (2) at the head of the valley of the Sitang. It is therefore destined to be the centre of the railway systems of Upper Burma. Already one line goes from it up the Irawadi valley to Myitkyina; another down the Sitang valley to Pegu and Rangoon; a third up the Myit-nge valley towards Kunlon Ferry; and a fourth has been begun up the Chindwin valley. The former court-industry of silk weaving in Mandalay is decaying, owing to the competition of cheaper foreign-made silks.

OTHER TOWNS.

1. **Seaports.**—**Maulmain,** at the mouth of the Salwin, and protected by the island of Bhilu, was, at the time of the British annexation in 1824, a mere fishing village. Favoured by its position, it has increased in size and importance till it is now a town of nearly 60,000 inhabitants, and the second seaport of Burma, exporting yearly goods to the value of a crore and a half of rupees. Maulmain has rice mills, and exports large quantities of cleaned rice; it is also the great *teak port* of Burma, for the Salwin, though of little use for navigation, floats down great rafts of this timber from the wooded hills.

Bassein, some eighty miles from the sea on the most westerly channel of the Irawadi, takes in big steamers, and is one of the chief outlets for the rice crop of the upper delta and plains.

Akyab, near the mouth of the Kaludan River, was, at the time of the British annexation, a small hamlet. It is now the third port of Burma, and the centre of the trade of the fertile rice-bearing Arakan coast-strip. It is a feeder port for Rangoon and Calcutta.

Kyaukpyu, on Ramri Island, farther south, is another feeder port.

Amherst, Tavoy, and **Mergui** are minor ports on the Tenasserim coast-strip. The two latter have a special trade in edible birds'-nests and pearls.

2. **River-ports.**—Myitkyina (*Mitchina*), Bhamo, Mandalay, Pagan, Magwe, Minbu, Yenangyaung (the oil port), Thayetmyo, Prome, and Henzada are centres of river traffic on the Irawadi. Kunlon Ferry is far up the Salwin.

Myitkyina, a small port on the highest reaches of the Irawadi, 50 miles below the junction of its two mountain feeders, is connected with Mandalay by railway. It is an outpost of civilization. The country beyond it is almost unknown.

Bhamo owes its importance to its position. It is the terminus for steamer traffic up the river, and is only 20 miles west of the Chinese frontier. Through it most of the trade with China passes, and when this is developed its importance will vastly increase.

Prome is the centre of a fruit-growing district.

Henzada, the head of the rich delta, is connected by railway with Bassein and with the Pegu-Mandalay line.

Pegu, connected with the Sitang by a canal, is a railway centre on the line to Mandalay; another line is now being made from Pegu to Maulmain.

Kunlon Ferry, far up the Salwin, will, entirely on account of its position, soon be a very important place. It is the meeting-place of the trade between Burma and Western China, and it will be connected with Mandalay by a railway up the Myit-nge valley.

3. **Ancient Capitals.**—Burma is a country of ancient capitals. AVA, SAGAING, and AMARAPURA are on the Irawadi plain south of Mandalay. PAGAN is on its left bank, a little below its junction with the Chindwin. As in former times houses in Burma were all built of bamboo, the king and his astrologers could easily order the people to pull down one capital and build another elsewhere.

Mineral Resources.—Burma, like India, has few minerals.

Petroleum.—This is by far the most important mineral production. Burma produces 98 per cent. of the total output of the Indian Empire. The oil is chiefly got in the Yenangyaung and the Yenangyat oil-fields in the Irawadi valley in Upper Burma. It is largely exported to Calcutta. But India, as a whole, uses oil from Russia.

Coal is obtained in the valley of the Chindwin, but the output is very small compared to that of Bengal.

Tin is found in the Tavoy and Mergui districts of the Tenasserim coast.

Rubies.—The rubies of the Burma ruby mines north of Mandalay are commercially the most important gems found in the Indian Empire.

Jade is also obtained, but the industry is not important.

Industries.—The chief industry of Burma, as of India, is agriculture. Burma is not, as India is, an old civilized country, and there are, therefore, few important industries besides the tilling of the soil. The chief of these are connected with Burma's three main products—namely, (1) the husking and cleaning of *rice* in large steam mills; (2) the felling and floating down the rivers of *teak* trees, which are sawn into logs in teak mills; (3) the pumping of *mineral oil* from wells, refining it, and making it into paraffin wax and candles for export. Wood-carving is also a great Burmese art.

The easy-going Burmese men, women, and children all smoke; they are also very fond of gay dresses—hence *cigar-making* and *silk-weaving* are important industries; gold and silver work is also carried on. Most of the hard work of Burma is done by foreigners—Parsis, natives of India, and Chinamen.

Communications.—From the geography of Burma we can see many obstacles to easy communication.

1. The three Yoma ranges run in parallel lines from north to south. This makes it difficult to get across country in Burma. Thus to reach Mandalay from Akyab (a distance of 250 miles in a straight line) we must first go down the coast to Bassein or Rangoon, and then up the Irawadi valley—a very long, roundabout route.

2. Burma in the north-west, north, and east is hemmed in by masses of mountains, which shut out communication with countries beyond.

3. Only one of its three large rivers, the Irawadi, is of any use for navigation.

For these reasons it will take a long time fully to open up Burma to trade and civilization.

Roads.—There are comparatively few roads, except in the more cultivated and populated parts near the coast and delta.

Rivers.—The Irawadi, with its tributaries and distributaries, forms a magnificent series of waterways. The shallow steamers of the Irawadi Flotilla Company are the great carriers of Burma, going up as far as Bhamo and down to Bassein and Rangoon.

Railways.—Owing to the mountainous nature of Burma, railways have not yet made much progress. The chief line runs from Rangoon, through Pegu, up the flat Sitang valley to Mandalay, and thence up the upper Irawadi valley to Myitkyina. From Mandalay one line has been begun up the Myitnge valley to reach Kunlon Ferry on the Salwin, and another has gone part of the way up the Chindwin valley. The lower Irawadi valley has only a line from Rangoon to Prome, with a branch to Bassein. Thus in Burma much has yet to be done. Some day Burma will be connected with India and with China by rail. India will probably be reached by a line from Bassein up the Arakan coast-strip to Chittagong, or by a line connecting Myitkyina with the upper Assam valley. China may be reached by a line from Kunlon Ferry to Yunnan.

Trade.—1. **Inland Trade.**—As there are few towns in the interior, and as the country is intersected by mountain ranges, there is comparatively little inland trade, and most of it consists in forwarding rice, teak, and oil to the ports for shipment.

2. **Foreign Trade.**—As agriculture is the chief industry of Burma, its foreign trade consists in exporting the produce of the soil, and receiving in exchange the manufactured goods of other countries.

Exports.—*Rice* is by far the most important export. This crop covers five-sixths of the whole cultivated area, and as the population is sparse, there is a large surplus for export. Rice is sent to Great Britain and Europe for distilling purposes, to make starch, and for food, and to the rice-eating countries in the East, such as Japan, China, and the Straits Settlements. Burma is a great granary of rice for India in case of famine.

Teak.—Burma is the great country for teak. Most of it goes to Great Britain.

Mineral Oil.—The export of this oil from Burma is a thriving trade. The oil is refined (as kerosene oil) in Burma, and is exported to China and the Straits. It is also made into paraffin wax and candles, and sent in this form to Great Britain, China, Japan, and the Straits.

Other exports are *grain* and *pulses*, *hides* and *skins*, *cutch dye* and *india-rubber*.

Imports.—*Cotton goods.* By far the most important import of Burma, as of India, is cotton manufactures of yarn and cloth. These come chiefly from Great Britain.

Metals.—Burma has to import all the metals used in the country, such as *brass*, *copper*, *iron*, and *steel*.

Machinery and mill-work. For rice mills, teak mills, and railways, Burma imports machinery and engines, chiefly from Great Britain.

Provisions.—Owing to the absence of caste, the Burmese buy large quantities of provisions from Europe.

Silk.—Silk is the holiday dress of the Burmese, and large quantities (raw and manufactured) come from China, Japan, and the Straits Settlements.

3. **Coasting Trade** with India.

Exports.—The rich soil of Burma grows more than is sufficient for its thin population, and the surplus of food goes chiefly to India in the shape of *rice*, *gram*, and *pulses*. India, especially Bengal, also takes large quantities of kerosene oil and teak.

Imports.—In return the Bengal coal-fields send coal for the rice mills, teak sawmills, and railways. Bombay, Bengal, and Madras send cotton cloth and yarn. Bengal sends gunny-bags (to hold the rice exported) and some silk goods, and Madras sends spices and sugar.

History.—The modern history of Burma centres round the three wars, each of which resulted in the annexation of a part of the country to the British Crown. After the first Burmese War (1824), Arakan and Tenasserim were annexed. After the second Burmese War (1852), Pegu, including the Irawadi delta, was annexed. After the third Burmese War (1886), Upper Burma was annexed. In 1897 the whole of Burma was made a Lieutenant-Governorship. Burma, though geographically separate from India, is, for the purposes of administration, a province of the Indian Empire.

FRONTIER BURMA.

In the extreme north of Burma the boundary is still undefined, but by conventions with the Chinese, the French, and Siam, the eastern boundary dividing Burma from China, French Indo-China, and Siam has been settled. Inside this boundary, however, the country is so mountainous and impassable that the British have not yet been able to introduce law and order among the frontier tribes. These tribes are protected as far as possible from invaders across the border, but they are not much interfered with by the British.

Kachin Hills.—The tribes on these hills beyond the confluence of the N'maika and N'malika, feeders of the Irawadi, are not interfered with, provided they do not make raids southward. South of this point peace is enforced, the tribes are disarmed, and roads are being made.

The Chin Hills.—The tribes on these hills, which lie between Burma and Bengal, are now entirely under British administration.

The Shan States, lying east of the Irawadi, are divided into the Northern and Southern Shan States. They have now come under British administration, though the great extent of territory which they cover is almost impassable.

Karenni.—This territory lies on the Salwin River below the Southern Shan States. It is not included in British territory, but the Superintendent of the Shan States has some authority over it.

It will take many years to bring all this frontier country of Burma under good government and civilization. Until roads and railways are built little progress is possible. At present Frontier Burma forms a belt of territory (separating true Burma from China, French Indo-China, and Siam) where the people are but little interfered with so long as they keep the peace.

FOREIGN POSSESSIONS IN INDIA.

Two European Powers, the French and the Portuguese, hold small portions of territory in India.

FRENCH POSSESSIONS.

Pondicherri, the chief settlement, and the residence of the French Governor-General, on the Coromandel coast.

Karikal, on the same coast, in the Tanjore delta of the Kavari.

Mahe, on the Malabar coast, just south of Tellicheri.

Yanaon, on the coast of the Godavari delta.

Chandarnagar, on the right bank of the Hugli below Chinsurah, and 20 miles above Calcutta.

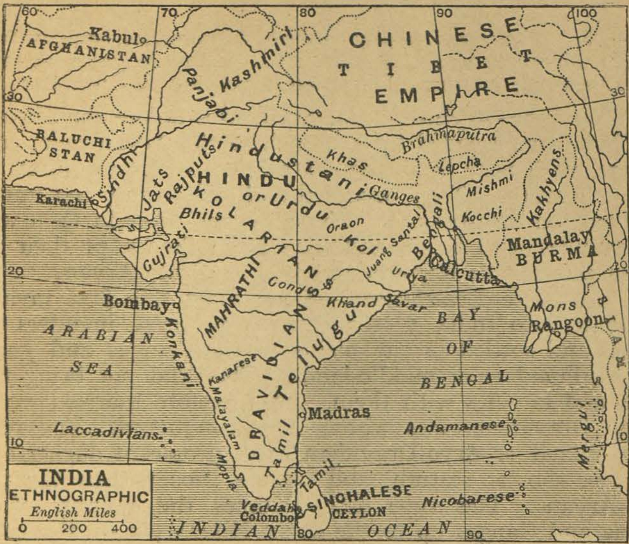
PORTUGUESE POSSESSIONS.

Goa, on the Konkan coast south of Bombay, is the largest (14 square miles) foreign settlement in India. Its port is **Marmagao,** which is joined with Bombay by a line over the Western Ghats. Old Goa city was at one time the wealthiest seaport in India, and though almost in ruins contains some magnificent churches. The new city of Goa is called Panjim.

Daman, on the coast of Gujarat.

Diu, an island off the south coast of the Kathiawar Peninsula.

These small territories, with a population of less than nine lakhs altogether, are all that remain of the French and Portuguese conquests in India. By treaties with France and Portugal the British have arranged that these places shall not be used as garrisons by which the peace of India may be disturbed. Only a limited number of French or Portuguese soldiers are allowed to be stationed in them.



THE PEOPLES OF THE INDIAN EMPIRE.

Races.—Although many different races inhabit different parts of the Indian Empire, they are by no means sharply marked off from each other. For example, the people of the Aryan race have spread themselves all over India as "conquerors, traders, landowners, or priests." Thus, though the people of the peninsula are, on the whole, of Dravidian blood, the highest classes among them, and especially the Brahmins, have a large mixture of Aryan blood.

1. **The Dravidians.**—Long before history begins, India was inhabited by savage or half savage tribes. They were rather short, with very dark skins, hair, and eyes, and broad noses. These were the Dravidians, and they still occupy the Peninsula of India.

There are scores of isolated Dravidian tribes, such as the Santals in Bengal proper, the Juangs of Orissa, the Gonds of the Central Provinces, the Konds on the northern spurs of the Eastern Ghats, the Todas on the Nilgiri Hills, and other tribes on the Western Ghats. But the main body of Dravidians dwells in the south of the

peninsula. They speak highly cultivated languages, such as Tamil, Telugu, Malayalam, and Kanarese ; have made great advances in civilization ; and have long been converted to Hinduism.

2. **The Indo-Aryans.**—Many centuries before the Christian era, India was invaded by a branch of the Aryan race, tall of stature, with very light skins, straight, finely-cut noses, and regular features. They occupied and still occupy the Punjab, Kashmir, and Rajputana. These Aryans brought their wives and families with them, and they have thus k pt their race almost pure. The Rajputs and Jats are Indo-Aryans.

3. **The Aryo-Dravidians.**—Long after this first invasion of Aryans into India, a second wave of Aryan invaders conquered and settled in the plains of the Ganges and Jumna (the Madhyadesa or middle-land). They did not bring their wives and families with them, and therefore married women of the Dravidian races whom they conquered. The result was a mixed or Aryo-Dravidian race, people of darker complexions, shorter stature, and broader noses than the pure Indo-Aryans. This type now occupies the country of the Jumna and Ganges up to the outer Himalayas on the north, and down to the slopes of the Central India table-land on the south.

4. **The Mongoloids.**—On the north and east India touches the great Mongolian region of the earth (Tibet and China). The Mongolians are short, with dark, yellow skins, flat faces, and eyelids often oblique. To this type belong the peoples of the part of Kashmir nearest Tibet, Nepal, Assam, and Burma.

5. **The Mongolo-Dravidians.**—Where the Mongolians and the Dravidians touch—that is, in Eastern Bengal and Orissa—there is another mixed race, partly Dravidian and partly Mongolian, of dark complexion, medium height, and with broad noses. The Bengalis are of this type.

6. **The Scytho-Dravidians.**—Long after the Aryans settled in India successive invasions of Scythians forced their way from the west into Sind, Gujarat, and the western Deccan. Here they mixed with the Dravidians, and their descendants have broad heads, dark skins, and broad noses. The Marathas belong to this type.

7. **The Turko-Iranians.**—In Frontier India—that is, in Baluchistan and the North-West Frontier Province—the people are of a different type from those of India proper. They are supposed to be a mixture of Turks and Persians, and

have fair skins, dark and sometimes gray eyes, and narrow and very long noses. The Baluchis and Afghans are of this type.

Religions.—As the Aryans intermarried with the Dravidians, so they gradually converted them to their religion. The Dravidians were *Animists*—that is, they believed that man is surrounded by a number of powers and spirits dwelling in trees, rivers, rocks, and waterfalls, which must be made friendly by magical practices. It was impossible in such a large area as India, among so many different tribes speaking different languages, that the religion of the Aryans could spread without being much changed. The Dravidians were made Hindus, but they kept many of their old Animistic beliefs and practices. Hence, just as the mass of the people of India is of mixed race, so their religion is the mixed religion which is called *Hinduism*. In its lowest forms it is just Animism; in its highest it comes very near Pantheism. "Between these extremes....there is room for every form of belief and practice that it is possible for the human imagination to conceive." When we say there are over two hundred and seven millions of Hindus in India, we do not mean that this great mass of people has any beliefs in common, but that they observe caste customs and reverence the Brahmins. Though in India the mass of the people is Hindu, yet in isolated parts of the country there are still scattered tribes, untouched by Hinduism, who know nothing of caste, and perform magical ceremonies to keep off evil spirits.

Mohammedanism.—Long centuries after the Aryans had invaded, conquered, and converted India, new hosts of conquerors entered the country in invasion after invasion. These were the Turkis, Afghans, and Moghals. In race they were mostly Aryan, but they brought with them a new religion—that of Islam—which they often tried to enforce at the sword's point. Their descendants and the descendants of those whom they converted to their faith are the Mohammedans or Mussulmans of India, who now number sixty-two millions.

Besides the ancient Aryans and the Mohammedans, India has received small bodies of outsiders who have had little or no influence on race or language, and only a little on religion. Among these are the Parsis, Europeans (chiefly British), and Jews.

The **Parsis** are Zoroastrians or fire-worshippers, who came from Persia. They number only some 94,000.

The **Europeans** (Portuguese, French, and British) have brought with them the *Christian religion*, to which nearly three millions of natives of India now belong. There is, however, in Travancore a sect of so-called Syrian Christians, whom still extant charters (engraved on plates of copper) prove to have existed there since the eighth century. Partly for this reason, and partly through Portuguese and more modern missionary effort, the States of Cochin and Travancore alone contain over a quarter of the total native Christian population of India.

The **Jews** are very few in number, and are found on the west coast (Cochin and Kolaba). In Cochin they have been settled for over twelve hundred years.

Besides these religions, which have been introduced from outside, there are three which have grown up in India itself.

1. **Jainism** is not, as has been supposed, an offshoot of Buddhism, but is quite as ancient a faith. It resembles Buddhism, but the Jains do not believe in Nirvana.

2. **Buddhism** was founded nearly two thousand four hundred years ago by Gautama; but though it has spread over a great part of Eastern Asia, it is nearly extinct in the land of its birth. There are, however, many Buddhists in Burma, and a few on the frontiers touching Tibet.

3. **Sikhism**, or religion of the Sikhs, involves the worship of one god, and prohibits image-worship and faith in omens and magic. Strict Sikhs have no caste distinctions, and do not recognize the Brahmins.

LIST OF THE CHIEF RELIGIONS OF INDIA.

Hindus	207	millions.	
Mussulmans	62	,,	
Animistic religions	$8\frac{1}{2}$	,,	
Sikhs	2	,,	
Jains	$1\frac{1}{3}$	,,	
Christians	3	,,	(nearly)
Buddhists	$9\frac{1}{2}$	,,	(almost all in Burma).

Languages.—There are said to be one hundred and forty-seven distinct languages spoken in India. They may be divided into three great families: (1) Dravidian; (2) Aryan; (3) Indo-Chinese.

1. The **Dravidian Languages** are spoken in the south of the peninsula, including the whole of the Madras Presidency,

in Mysore, and in the southern strip of the Bombay Presidency, of Haidarabad, of the Central Provinces, and of Bengal.

Tamil is the most cultivated and the best known. It is spoken over the whole of South India as far as Mysore and the Ghats on the west, and a little farther north than Madras town on the east.

Telugu, "the Italian of the East," is most widely spread, and is spoken over all the east of the peninsula north of the Tamil area. The Telugu country is the "Andhra" of the Sanskrit writers, and the "Telingana" of the Mohammedans.

Malayalam is spoken on the Malabar coast. It is an offshoot from Tamil.

Kanarese is spread over Mysore (its true home), and over part of Bombay and Haidarabad.

Tulu is a highly cultivated language, with no literature, spoken in a small area in South Kanara district on the west coast. There are other Dravidian languages or dialects of Telugu, Tamil, and Kanarese spoken by the hill tribes all over the area. The tongues spoken by the Todas and Badagas of the Nilgiri Hills, the Gonds and Konds of the Central Provinces, and the Santals in Bengal, are examples.

2. The **Aryan Languages** are spoken over the rest of India proper. They are derived from the Prakrit or spoken language of the ancient Aryan invaders. The chief Aryan languages are *Hindi*, *Bengali*, *Bihari*, *Uriya*, *Rajasthani*, *Gujarati*, and *Punjabi*. Of these, Hindi is most widely spoken. *Hindustani* is the language spoken by most Mohammedans in India, and is the polite speech of most natives of India. As a vernacular, it is a dialect of Hindi. With a knowledge of Hindustani a person can make himself understood by all educated persons in India north of the Godavari.

3. **Indo-Chinese Languages.**—These are spoken in the hill country east of the Ganges plain and throughout Burma. Burmese is the most important.

Of these three families, the Aryan languages are spoken by 221 millions; the Dravidian by 59½ millions; and Indo-Chinese by 11½ millions.

In the census of India, 1901, only a quarter of a million of people returned *English* as their mother-tongue.

MINERAL RESOURCES OF THE INDIAN EMPIRE.

Considering its great area, the Indian Empire is not very rich in minerals. The chief are *coal*, *iron*, *gold*, *mineral oil*, and *salt*.

Coal.—The chief coal-fields of India are those of **Raniganj, Jherria,** and **Giridhi** in Bengal proper, on the East Indian Railway near the Damodar valley, within 200 miles of Calcutta. There are also mines in **Assam,** at **Warora** in the Central Provinces, at **Umaria** in the Rewah State in Central India, and at **Singareni** in Haidarabad. The annual production of coal in India is only seven millions of tons, while Great Britain produces 230 millions yearly. But India already produces enough for her present wants.

Iron.—The chief sources of ironstone are at **Salem** in Madras, at **Chanda** in the Central Provinces, and at **Raniganj** in Bengal proper. The Raniganj iron, which is smelted at Barrackur, is the only iron at present mined on a large scale. It is found close to the coal mines. The other iron fields are not worked, owing to the difficulty of finding near them good coal and lime to smelt the iron.

Gold.—The production of gold in India is practically confined to the gold fields of Kolar in Mysore, where nearly £2,000,000 worth of gold was obtained in 1901.

Mineral Oil.—The great oil fields are in Burma, which yield 98 per cent. of the oil produced in the Indian Empire. The chief oil wells are Yenangyaung and Yenangyat in Upper Burma. Most of the mineral oil burned in India comes from Russia.

Salt.—In India salt is largely mined. The Government of India has the making of salt in its own hands. Salt is produced (1) by evaporation from sea-water, chiefly in Madras; (2) from the Sambhar Lake in Rajputana, and brine pits in the Rann of Cutch; (3) it is dug out of the Salt Range mines in the Punjab; (4) it is imported from abroad, chiefly from the United Kingdom and Germany. Inferior salt is made from salt earth in various parts of India, but the manufacture of this salt is illegal.

OTHER MINERALS.

Tin is found in the Tavoy and Mergui districts of Lower Burma, but it is, as yet, not largely worked.

Manganese (used in the manufacture of steel) is found in large quantities near Vizagapatam in Madras, and also, in greater quantities, in the Central Provinces.

Mica (a good non-conductor of heat and electricity) is mined at Hazaribagh in Chutia Nagpur, in Madras, and in Bengal.

Rubies and **jade** are found in Upper Burma, **plumbago** in Travancore; **copper** is known to exist in the north of Bengal, and **saltpetre** is found in the Bengals.

THE INDUSTRIES OF THE INDIAN EMPIRE.

The great industry of the Indian Empire is **agriculture.** About two-thirds, or 66 per cent., of the population gets its living from the tilling of the fields, pasturing of cattle, or forests. In India, as a whole, about nine persons out of ten are supported by simple village occupations which are directly or indirectly dependent on the cultivation of the soil. The other industries may be divided into three classes: (1) indigenous or native industries, worked without steam, which have been practised in India for centuries; (2) modern industries, which have been introduced into India, and which are carried on in large mills and factories worked by steam engines; (3) industries connected with agriculture.

INDIGENOUS INDUSTRIES.

1. **Handloom Weaving of Cotton Cloth.**—This has always been the most important industry of India, as every one in the country wears cotton cloth. Formerly India used to export cotton goods to Europe (for example, the calicoes made in Calicut), but nowadays people in India wear cotton cloth made in steam mills either in India or in England, so that the handloom weaving is confined to (1) the coarsest kinds of cloth; (2) special kinds of cloth, such as the turbans and *saris* of Bombay, or the muslins of Arni, Cuddapah, and Madura, in the Madras Presidency, or of Dacca, in E. Bengal-Assam.

2. **Silk Weaving.**—Fine silk, hand-woven from mulberry

silk, is made chiefly in the Bengals; coarse, or tusser, silk is made in Assam, where the raw silk is gathered from cocoons in the jungles.

3. **Hand-weaving of Woollen Goods.**—India being a hot country, the people do not use woollen goods much. Kashmir used to be famous for beautiful *shawls*, but this industry is nearly dead. In Madras, at Ellore and Masulipatam, cheap *carpets* are woven. *Blankets* are made in nearly every province.

4. **Wood-carving.**—India has always been famous for wood-carving. In almost every house in Great Britain, Indian toys, boxes, book-covers, and ornaments are to be found made of ebony, ivory, sandal-wood, or horn. The Burmese are also great carvers in teak.

5. **Metal-working.**—The making of brass and copper vessels, either plain for household use or carved for ornaments, is a great industry in India. They are made from sheets of brass or copper imported from abroad. Madura and Benares are two great centres. In recent years the making of cooking vessels and other articles of *aluminium* has begun, and is increasing in the city of Madras.

Besides these industries there are many other crafts, such as those of carpenters, blacksmiths, silversmiths, goldsmiths, and potters, who are found in every village.

INDUSTRIES CARRIED ON IN STEAM FACTORIES.

1. **Cotton Mills.**—By far the greatest manufacture of India is that of cotton. It is divided into two branches: (1) the spinning of cotton thread or yarn; (2) the weaving of cotton cloth. There are in India about two hundred mills, nearly all of which are in Bombay Presidency. Indian cotton has not so fine a "staple," or quality, as American cotton, and so the finest cotton cloth worn in India comes from England, which uses American cotton. India not only supplies her own people with yarn and cloth, but exports them largely abroad. The yarn goes to China, and the cloth to East Africa, China, and Ceylon.

2. **Jute Mills.**—India has a great advantage in the manufacture of jute, because it is the greatest jute-growing country in the world. There are about forty jute mills in India, and they are nearly all in the Bengals, chiefly on the banks of the Hugli. The jute is there manufactured into coarse cloth

largely used for making *gunny bags*, which are exported to the United States, Great Britain, Australia, and the Argentine. A great deal of the grain trade of these countries is carried in gunny bags made in Bengal jute mills.

3. **Other Industries.**—The other industries are all much less important than these two principal ones.

Woollen mills, which make cloth for the use of the army and police, in the United Provinces and the Punjab.

Paper mills, which make foolscap and blotting paper for Government offices, chiefly in the Bengals.

Flour mills, in the wheat-producing provinces, the Punjab, Sind, and the United Provinces.

Cotton-ginning factories and cotton presses, in the cotton-growing districts of Bombay, Berar, Madras, the United Provinces, the Punjab, and Central Provinces.

Breweries.—Beer requires a cool climate for its manufacture, and the breweries are chiefly on the hills of the United Provinces and the Punjab. Murree has the largest brewery in India. Most of the beer is bought by Government for the use of European soldiers.

Printing presses, in the provinces where education is most widespread—that is, chiefly in the Bengals, Madras, Bombay, and the United Provinces, and in most large towns.

Mills for husking and grinding rice, chiefly in the rice-growing provinces of Burma, the Bengals, and Madras.

Timber mills, in the teak-growing countries, Burma and Assam.

Potteries and tile works, in almost every province.

Tanneries, in Madras.

INDUSTRIES CONNECTED WITH AGRICULTURE.

1. **Tea factories** for preparing the leaf are almost confined to Assam, the great tea-growing country. There are also a few in the tea districts of Madras, the United Provinces, and the Bengals.

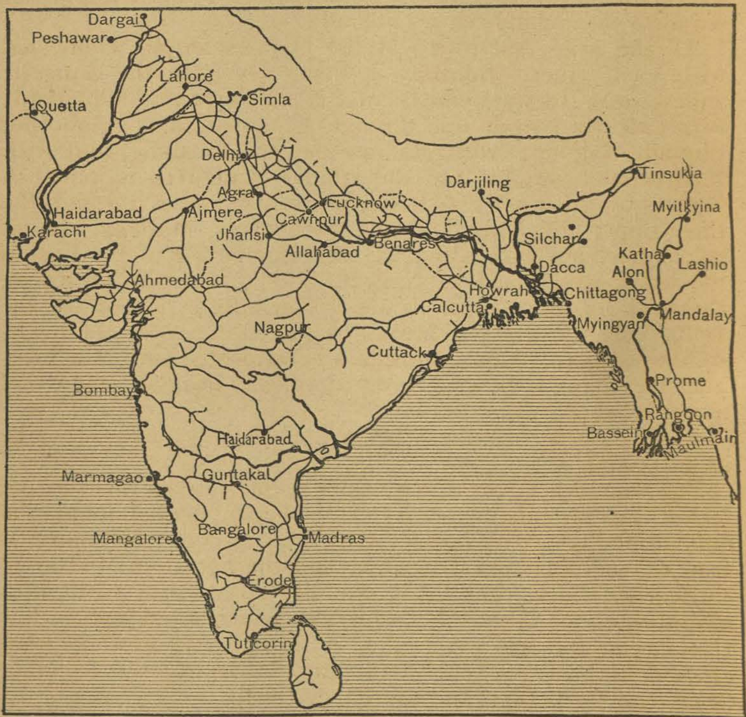
2. **Indigo factories** are chiefly found in the indigo-growing districts of the United Provinces, Madras, and Bengal proper.

3. **Coffee works** for preparing the coffee berry are confined to the Madras Presidency, where most of the coffee is grown.

COMMUNICATIONS.

Railways in India have been built :—

1. In the most fertile and most densely populated parts of the country.



RAILWAY MAP OF INDIA.

Thus the railway map of India shows that the railways are thickest in the great Indo-Gangetic plain. A great trunk line runs from Calcutta through Benares, Allahabad, Cawnpur, Agra, Delhi, Ambala, and Lahore to Peshawar, and another from Benares to Ambala through Lucknow and Bareilly. But besides these main lines, there are many others,

and almost every large town in the plain region is a junction of two or more lines. So also in the rich country of Gujarat and the Carnatic there are many railways. But in Rajputana, Sind, the Central Provinces, and Haidarabad, where the country is not highly cultivated and the population is sparse, there are but few lines.

2. To connect large towns, especially to connect important seaports with inland centres of trade.

All the cities and towns of the plain region are connected with each other. **Bombay** is connected with the Gangetic valley towns by lines which enter Agra, Cawnpur, Allahabad; with Calcutta by one line through Allahabad, and by another through Nagpur; with Madras and the Carnatic, and with the towns of Gujarat and Rajputana. **Calcutta** is joined to Madras by the East Coast Railway, which passes through the three important deltas and many seaports. **Madras,** besides its connections with Calcutta and Bombay, has one line to the fertile west coast at Calicut, and another to Tuticorin, the port for the Ceylon trade. **Karachi** is joined by the Indus Valley Railway to Multan, Lahore, and so to the towns of the Gangetic plain. **Rangoon is** connected with Mandalay and the country beyond it by a railway up the Sitang and upper Irawadi valleys.

3. Where they are most easily and cheaply made—that is, in flat country.

This is another reason why railway lines are so thick in the Indo-Gangetic valley—scarcely any digging is required; the only difficulty is the bridges over the rivers. The same is true of the East Coast Railway and the line from Madras to Tuticorin, which runs along the flat coast-strip. But in a mountainous country like Kashmir there are no railways. The Himalayas and the mountains of Burma have nowhere been crossed, and the Western Ghats only in three places—the Bhor Ghat, the Thal Ghat, and the Palghat Gap.

4. For military purposes.

The whole of the Indus Valley Railway may be considered a military railway—that is, it has been built in order to convey troops and guns quickly to any part of the frontier. Off this line short branches strike up to the passes—for example, the lines to Quetta and the Bolan Pass, a line from Kohat towards the Kuram Pass, a line from Peshawar to Jamrud at the mouth of the Khaibar, and a line from Now-

shera, on the Peshawar Railway, to Dargai, at the Malakand Pass.

5. As distributors of food in time of famine.

When famine comes on a district the cattle die, and railways are the only means of carrying food to save the people from starvation. The railways of Rajputana, the Punjab, and the Madras Carnatic were partly built for this purpose. As time goes on these lines gather traffic, and repay their outlay.

Rivers.—The **Indus**, the **Ganges**, the **Brahmaputra**, and the **Irawadi**, with their tributaries, are the chief means of inland navigation. Being snow-fed, they remain full during the hot weather.

The **Indus** carries goods from the southern Punjab and Sind. Karachi is its port. The railway has taken away much of this trade. The river is constantly changing its bed, and is therefore not easy to navigate. The railway along the Indus valley has taken away all the steamboat traffic.

The **Ganges** and its tributaries carry a large amount of cheap and bulky goods up and down the Great Plain, but the many railways have stolen much of the steamer traffic. The Ganges with its tributaries still, however, carries more boat traffic than any other river in the world except the Yangtse-kiang.

The **Brahmaputra**, with its tributary the Surma, conveys the traffic of Eastern Bengal and Assam to Calcutta. It is the great natural highway to the north-east, and is navigable for steamers as far as Dibrugarh, 800 miles from the sea.

The **Irawadi** brings down teak and timber and rice and oil to Rangoon. It is navigable as far as Bhamo, and there is a service of magnificent steamers on the river.

There is some boat traffic on the Mahanadi, Godavari, Kistna, Narbada, Tapti, and Salwin.

Roads.—In ancient times there were scarcely any roads in India or Burma ; everything had to be carried on pack animals. During the last fifty years the Government has made roads all over the country connecting the chief towns. When a railway is built, roads are soon made to the stations on it from the towns and villages on either side. The **Grand Trunk Road** runs from Calcutta to Peshawar, and is the great highway for cart traffic through the fertile plain region. Roads are most numerous on the flat alluvial and fertile plains of India, because (1) they are there most easily made ; (2) owing to the

density of population they are there most wanted. But the great drawback to the making of roads on the alluvial plains is the scarcity of stones and rock to metal the roads. Thus the Bengals have, owing to their flatness and the density of their population, many more roads than the Madras Presidency, but they have far fewer *metalled* roads.

Canals.—The most important canals in India are meant for irrigation purposes, but some have been designed for navigation by small boats. The principal navigation canals are those in Bengal, through the Sundarbans, and along the Orissa coast, the Ganges and Agra canals in the United Provinces, and the Buckingham Canal from Madras to the Kistna delta. The Great Ganges Canal runs from Hardwar to Cawnpur. The backwaters of the Malabar coast are natural canals.

THE TRADE OF THE INDIAN EMPIRE.

1.—INTERNAL TRADE.

By far the most important trade of every country is that which is carried on within its own limits—that is, between its different provinces. The trade that is carried on in India by roads, railways, rivers, and canals is much greater than that carried on between it and other countries over sea.

2.—FOREIGN TRADE.

Over-sea.—India being an agricultural country with few mineral resources, its exports are chiefly the produce of its fields and forests. Its only important exports of manufactured articles are cotton and jute goods. In return for these, India imports manufactured goods which she does not make herself, and metals which are not found in India.

EXPORTS.

(1.) PRODUCE.

1. **Rice.**—There are two markets for Indian rice—(1) Great Britain and European countries, where it is largely used for making starch and for distilling ; (2) rice-eating countries such as East Africa, Japan, the Straits Settlements, Mauritius, and Natal. Burma sends most of it.

2. **Wheat.**—Indian wheat is exported chiefly to Great Britain. The amount sent varies very much. If there is a good harvest in India, and the price in Great Britain is high, it is largely exported, chiefly from the Punjab and the United Provinces, through Karachi.

3. **Oil-seeds** (chiefly linseed, rape seed, gingelly, castor, and ground-nut) are sent to France, Great Britain, Germany, and Belgium. Marseilles (in the south of France) is the largest centre of the vegetable oil industry on the continent of Europe.

4. **Raw Cotton.**—India is exporting more and more raw cotton every year. Her chief customers are Japan (where cotton mills have largely increased) and the continent of Europe, where goods are made out of the inferior Indian cotton.

5. **Raw Jute.**—The Bengals use one half of the jute crop in their mills, and send the other abroad to Great Britain, the Continent, and the United States.

6. **Opium.**—Most of India's export of opium goes to China and the Straits Settlements, where it is smoked by the Chinese.

7. **Tea.**—Great Britain takes nearly 90 per cent. of all the tea exported from India; some also goes to Canada and Australia. The people of France, Germany, Italy, and the countries of Western Europe do not drink tea, but coffee. The Russians are great tea-drinkers, but they get most of their tea from China. It would make a great difference to the Indian tea trade if the people of America and Europe liked tea as much as do the inhabitants of Great Britain and her colonies.

8. **Indigo.**—Indian indigo is exported to Great Britain, the continent of Europe, Japan, and the United States, but the trade is growing smaller every year owing to the invention of chemically manufactured indigo.

9. **Raw Hides and Skins.**—Large quantities go to Germany, Italy, Austria, France, and the United States.

10. **Raw Wool.**—Great Britain takes nearly all of the exports of raw wool for her woollen manufactories.

11. **Coffee.**—Most of the shipments of Indian coffee go to Great Britain and France. The French are great coffee-drinkers. India supplies only a small part of the world's coffee; most of it comes from Brazil.

(2.) MANUFACTURED GOODS.

India exports, in large quantities, only two kinds of manufactured goods—namely, *jute* and *cotton*.

Jute.—*Gunny bags and jute cloth.*—The mills of the Bengals supply the whole world with gunny bags and jute cloth. The bags are used to carry grain and other commodities, and the great producing countries, such as Australia (grain and wool), the United States (grain), the Argentine Republic (grain and wool), take enormous quantities. The export trade in jute goods is one of the most flourishing in India.

Cotton.—Large quantities of manufactured cotton-twist and yarn and piece goods are exported from India (chiefly from Bombay mills). India now supplies a great part of Asia and Africa with cheap cotton cloth.

Twist and yarn.—Most of this goes to China and the Straits.

Piece goods.—These are sent down the African coast to Abyssinia, British, German, and Portuguese East Africa, and to the Far East, to the Straits and the Philippines, also to Ceylon.

Other manufactured goods are **silks, woollen carpets and rugs,** and **cigars,** to Great Britain; **dressed or tanned skins and hides,** to Great Britain and the United States.

(3.) MINERALS.

Manganese ore is the only metal exported, and it goes to Great Britain and the United States.

Saltpetre goes to America for pickling purposes, and to China to make fireworks.

Mica is now exported in small quantities.

IMPORTS.

1. **Cotton.**—(1) Yarn for weaving in India; (2) piece goods (gray, white, and coloured), shirtings, mulls, drills, handkerchiefs, etc. These come almost entirely from the cotton mills of Lancashire in England. *Cotton goods are by far the largest item of imports* into India.

2. **Metals** (especially iron and steel), imported into India usually in a wrought state in the shape of bars, beams, rods, bolts, screws, nails, galvanized (iron) sheets, and wire—almost entirely from Great Britain, but Belgium and Germany are

sending more and more every year. India has for centuries imported annually large quantities of the precious metals, especially silver. All the silver used in India has come from abroad at some time or other.

3. **Machinery, including railway materials and mill-work,** almost entirely from Great Britain, which is the great country for iron manufactures. Germany and the United States also send a small proportion.

4. **Hardware and cutlery,** mostly from Great Britain (Sheffield); some from Belgium and Germany.

5. **Sugar.**—Cane sugar from Mauritius and Java; beet sugar from Germany and Austria.

6. **Mineral oil,** from Russia and the United States—countries with large oil-fields.

7. **Silk.**—Raw silk from China and the Straits Settlements; silk goods chiefly from Japan, but also from China, France, and Great Britain.

8. **Woollen goods,** mostly from Great Britain and Germany.

9. **Provisions,** mostly for the use of the Europeans in India, and therefore chiefly from Great Britain; but large quantities of salt fish (from the Straits Settlements), and dates from Persia, Turkey, and Arabia, are imported for the use of the natives of India.

10. **Liquors.**—The taking of intoxicating drink is against the caste of most Hindus, and is forbidden by the Koran, so that these liquors are chiefly consumed by Europeans. The malt liquors come from Great Britain, and the wines from the grape-growing countries of France, Germany, and Spain.

11. **Clothes and boots and shoes,** from Great Britain and (a little) from the continental countries of Europe. Mostly worn by Europeans.

SOME SPECIAL IMPORTS.

Horses from Australia and Arabia; **matches** from Japan, Sweden, and Norway; **enamelled iron work** from Austria; **clocks and watches** from France and Switzerland; **camphor** from Japan; **fireworks** from China; **betel-nuts** from Ceylon.

The great mass of the people of India are poor, and cannot afford to buy many foreign goods. **Cotton cloth, kerosene oil,** and **matches** are almost the only foreign goods found in every household.

3.—TRANS-FRONTIER TRADE.

There is as yet but little trade between India and Burma and the neighbouring countries. There are few good roads outside of India, and these few are often dangerous. Most of the trans-frontier trade is carried on with Afghanistan, Nepal, Tibet, and Western China. India and Burma export *cotton goods, metals, salt, sugar, tobacco*, and *indigo*, and import *cattle, horses, fruits, wool, drugs, seeds*, and *timber*.

4.—COASTING TRADE.

There is a large trade carried on by native craft and small steamers along the coasts of India and Burma. These vessels collect goods from the smaller ports and take them to the large harbours, such as Rangoon, Calcutta, Madras, Colombo (in Ceylon), Bombay, and Karachi, where they are transferred to large ocean-going steamers for export. The Madras coasts have many small ports, and hence there is a large coasting trade there. Calcutta is the centre of the coasting trade on the northern shores of the Bay of Bengal. Bombay is the centre of the trade of the Konkan and the Gulf of Cambay.

AREA AND POPULATION OF THE INDIAN EMPIRE.

BRITISH TERRITORY.

British Territory.	Area in square miles.	Population in 1891.	Population in 1901.	Population per sq. mile in 1901.
Burma :—				
Lower	81,138	4,408,466	5,405,967	67
Upper	87,435 }	3,313,587	{ 3,846,908 }	44
Shan States	68,165 }		{ 1,237,749 }	18
Total Burma..	236,738	7,722,053	10,490,624	44
Assam *	56,243	5,477,302	6,126,343	109
Bengal * :—				
Bengal	70,184	38,277,313	41,259,982	586
Behar	44,197	24,393,504	24,241,305	548
Orissa	9,841	4,047,352	4,343,150	441
Chutia Nagpur	26,963	4,628,792	4,900,429	182
Total Bengal..	151,185	71,346,961	74,744,866	495
United Provinces :—				
Agra	83,198	34,253,960	34,858,705	419
Oudh	23,966	12,650,831	12,833,077	537
Total United Provinces..	107,164	46,904,791	47,691,782	446
Ajmere-Merwara	2,711	542,358	476,912	176
Punjab	97,209	19,009,343	20,330,339	209
N.-W. Frontier Province	16,466	1,857,504	2,125,480	129
Baluchistan	45,804	....	308,246	6
Bombay :—				
Bombay	75,918	15,959,135	15,304,677	201
Sind	47,066	2,875,100	3,210,910	68
Aden	80	44,079	43,974	549
Total Bombay..	123,064	18,878,314	18,559,561	201 †
Central Provinces	86,495	10,784,294	9,876,646	114
Berar	17,710	2,897,491	2,754,016	156
Coorg	1,582	173,055	180,607	115
Madras	141,726	35,630,440	38,209,436	269
Andamans and Nicobars	3,143	15,609	24,649	8
Total British..	1,087,204	221,239,515	231,899,507	213

* In 1905 the new province of EASTERN BENGAL AND ASSAM was formed by the addition to Assam of fifteen districts of Bengal. This reconstitution therefore left BENGAL with a total area of 110,054 square miles and a population of 50,723,318, and gave to the new province of EASTERN BENGAL AND ASSAM an area of 101,147 square miles and a population of 30,788,134.

† Bombay Presidency only.

Year.	Area.	Population.*
1851	776,000	178·50
1861	856,000	196·00
1871	860,000	195·84

Year.	Area.	Population.*
1881	875,186	198·86
1891	964,993	221·17
1901	1,087,204	231·89

* Population in millions and two decimals.

NATIVE AND FEUDATORY STATES.

States or Agency	Area in sq. miles.	Population 1891.	Population 1901.	Pop. per sq. mile 1901.
Haidarabad...........	82,698	11,537,040	11,141,142	134
Baroda...............	8,099	2,415,396	1,952,692	241
Mysore...............	29,444	4,943,604	5,539,399	192
Kashmir..............	80,900	2,543,952	2,905,578	35
Rajputana............	127,541	11,990,504	9,723,301	76
Central India.........	78,772	10,318,812	8,628,781	109
Bombay States........	65,761	8,082,107	6,908,648	105
Madras ,, ...	9,969	3,700,622	4,188,086	420
Cent. Prov. ,, ...	29,435	2,160,511	1,996,383	68
Bengal ,, ...	38,652	3,326,837	3,748,544	97
United Prov. States...	5,079	792,491	802,097	158
Punjab States.........	36,532	4,263,280	4,424,398	121
Baluchistan...........	40,580	....	502,500	12
Total States..	633,462	66,075,156	62,964,049	98
TOTAL INDIA..	1,766,642	287,314,671	294,361,056	167

Population in 1901 of the twenty-eight cities of India with over a lakh of inhabitants.

(A lakh is 100,000.)

Over ten lakhs.

Calcutta, including Howrah and suburbs...................... 1,106,000

Over four lakhs.

Bombay 776,000
Madras......................... 509,000
Haidarabad..................... 448,000

Over two lakhs.

Lucknow 264,000
Rangoon........................ 235,000
Benares........................ 209,000
Delhi.......................... 208,000
Lahore 202,000

Over a lakh and a half.

Cawnpur........................ 197,000
Agra 188,000
Ahmadabad 185,000

Over a lakh and a half—*continued.*

Mandalay....................... 183,000
Allahabad 172,000
Amritsar....................... 162,000
Jaipur 160,000
Bangalore...................... 159,000
Poona 153,000

Over a lakh.

Patna.......................... 134,000
Bareilly....................... 131,000
Nagpur......................... 128,000
Srinagar 122,000
Surat.......................... 119,000
Meerut......................... 118,000
Karachi........................ 117,000
Madura......................... 106,000
Trichinopoly................... 105,000
Baroda......................... 103,000

INDEX.

Place-names are in italics; **productions** and **commodities** (natural or otherwise) in **thick type**; other matters in roman (ordinary) type. Figures in thick type (**161**) refer to more important notices of the subject. Entries of two or more words are under the first word—for example, *Khaibar Pass*, *Chutia Nagpur*, *Taj Mahal*; but if the first word is generic, the entry is under the second—for example, *Ganges, River*; *Cutch*, *Gulf of*.

Abbreviations used in the index :—

Ag. = agency.	Hist. = history.	Pop. = population.
C. = cape.	Hs. = hills.	Prods. = products.
Chars. = characteristics.	I. = island.	R. = river.
Cl. = climate.	L. = lake.	Ra. = range.
Coms. = communications.	Manu. = manufactures.	St. = state.
Dist. = district.	Mts. = mountains.	Str. = strait.
Div(s). = division(s).	P. = pass.	Tn(s). = town(s).
G. = gulf.	Phys. = physical.	Tr. = trade.
Govt. = government.	Pl. = plain.	Vall. = valley.

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